

APSEZL/EnvCell/2015-16/039

Date: 24.11.2015

To
The Director (S),
Ministry of Environment & Forests,
E-5, Kendriya Paryavaran Bhawan,
Arera Colony, Link Road No. - 3,
Bhopal - 462 016
E-mail: rowz.bpl-mef@nic.in

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,
Ministry of Environment, Forests & Climate Change,
क्षेत्रीय कार्यालय (पश्चिम क्षेत्र) Regional Office (Western Zone)
'केन्द्रीय पर्यावरण भवन',
'Kendriya Paryavaran Bhawan'
लिंक रोड नं.-3, ई-5, रविवंकर नगर,
Link Road No.-3, E-5, Ravishankar Nagar,
भोपाल / BHOPAL

Sub : Half yearly Compliance report of Environment and CRZ Clearance for "Handling facility of General Cargo / LPG /Chemicals and their storage terminal at Navinal Island, Mundra taluka of Kutch district, Gujarat"

Ref : Environment and CRZ clearance granted to M/s Adani Ports & SEZ Limited vide letter dated 25th August, 1995 bearing no. J-16011/13/95-IA.III

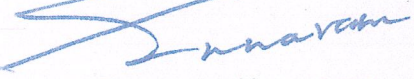
Dear Sir,

Please refer to the above cited reference for the said subject matter. In connection to the same, it is to state that copy of the compliance report for the Environmental / CRZ Clearance for the period of Apr'15 to Sep'15 is enclosed here for your records. The stated information is also provided in form of a CD (soft copy).

Thank you,

Yours Faithfully,

For ~~Adani Ports~~ and Special Economic Zone Limited


Ennarasu Karunesan
Chief Executive Officer
Mundra Port

Encl: As above

Copy to:

1. The Director (IA Division), Ministry of Environment, Forests & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110003
2. Zonal Officer, Regional Office, CPCB - Western Region, Parivesh Bhawan, Opp. VMC Ward Office No. 10, Subhanpura, Vadodara, Gujarat - 390 023
3. Member Secretary, GPCB - Head Office, Paryavaran Bhavan, Sector 10 A, Gandhi Nagar, Gujarat- 382 010
4. Deputy Secretary, Forests & Environment Department, Block - 14, 8th floor, Sachivalaya, Gandhi Nagar, Gujarat - 382 010
5. Regional Officer, Regional Office, GPCB - Katira Complex-1, Mangalam Char Rasta, Sanskar Nagar, Bhuj (Kutch), Gujarat - 370 001

Adani Ports and Special Economic Zone Ltd
Adani House
PO Box No 1
Mundra, Kutch 370 421
Gujarat, India

Tel +91 2838 25 5000
Fax +91 2838 25 5110
info@adani.com
www.adani.com



Environmental Clearance Compliance Report

of



Multi-purpose Jetty and Storage
Facilities, Navinal Island,
Mundra, Dist. Kutch, Gujarat

of

Adani Ports and SEZ Limited
For

Period:

April-2015 to September-2015

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Compliance Report

	Adani Ports and SEZ Limited	From : April'15 To : September'15
Status of the conditions stipulated in Environment and CRZ Clearance		

Half yearly Compliance report of Environment and CRZ Clearance for "Handling facility of General Cargo / LPG /Chemicals and their storage terminal at Navinal Island, Mundra taluka of Kutch district, Gujarat"

Sr. No.	Conditions	Compliance Status as on 30-09-2015
2(i)	All construction designs / drawings relating to various project activities should have the approval of the concerned State Government departments / Agencies.	Information submitted to the Ministry of Environment and forest along with half yearly compliance dated 02.12.2013.
2(ii)	To prevent discharge of bilge wastes, sewage and other liquid wastes from the oil tankers / ships into marine environment, adequate system for collection, treatment and disposal of liquid wastes including shore line installation and special hose connections for ships to allow for discharge of sewage must be provided.	- Ships berthing at Mundra Port comply with MARPOL regulations. - No discharge is allowed into marine environment inside port limits and APSEZL does not receive sewage/liquid waste from ship. - Oily sludge (a mixture of oil, water and dirt) is disposed through authorized recycler / re-processor.
2(iii)	The quality of treated effluents, solid wastes, emissions and noise levels etc. must confirm to the standards laid down by the competent authorities including the central and State Pollution Control Boards under the Environment (Protection) act, 1986 whichever are more stringent.	The quality of treated effluent, emission and noise level is being monitored regularly by a MoEF/NABL accredited agency. Monitoring report from April, 15 to September, 15 is enclosed as Annexure-1.
2(iv)	Adequate provision for infrastructure facilities such as water supply, roads, sanitation etc. should be ensured so as to avoid environmental degradation in the surrounding areas. These facilities should be brought into existence during the construction phase and will remain in existence thereafter as part of the infrastructure build up in the area for local developmental purposes.	Construction activity is already completed. Adequate infrastructure facilities have been provided during construction phase and are presently available.
2(v)	Adequate noise control measures should be ensured in various project activities and due to increase in the traffic which is likely to take place during construction and operational phases.	Following noise control measures are taken - All DG set are installed with acoustic enclosure. - Green Belt has been developed. - Traffic signage has been provided to reduce unnecessary blowing of horns.

	Adani Ports and SEZ Limited	From : April'15 To : September'15
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Sr. No.	Conditions	Compliance Status as on 30-09-2015
2(vi)	The water quality parameters such as dissolved oxygen, ammonical nitrogen and other nutrients etc. should be measured at regular intervals to ensure adherence to the prescribed standards of water qualities. Suitable ground water monitoring should also be undertaken around the sludge lagoons and regular reports to be submitted to the Ministry for evaluation.	- The waste water (if any) is being treated in ETP. Monitoring report of the treated effluent is enclosed as Annexure-1. - Sludge generated in the ETP is being disposed off through common TSDF facility. - The complete facility is on Navinal island and the area of ETP is paved therefore there is no possibility of contamination of water.
2(vii)	Adequate culverts should be provided for smaller creeks so that breeding grounds for crabs, mud snappers and other marine organisms are not cut off by road construction activities.	Construction activity is already completed. Details of culverts provided is submitted to the Ministry of Environment and Forest along with half yearly compliance dated 02.12.2013
2(viii)	A hundred meter wide mangrove belt should be created all along the west of Navinal Creek till its junction up to new road. Green belt of 50 M width should also be provided all along the periphery of the plant site and along the roads, storage tanks etc. at 1500 trees per hectare. All details regarding the Mangrove belt and other afforestation work must be worked out in consultation with the State Forest Department, and details sent to the Ministry.	Details of the developed mangrove along the west of Navinal creek and green belt details are submitted to the Ministry of Environment and Forest along with half yearly compliance dated 02.12.2013. Details on mangroves afforestation carried out by APSEZL till date is annexed as Annexure - 2.
2(ix)	Arrangements should be made for ensuring fresh water availability for various project related activities. Special water harvesting programs should be undertaken in the project impact area. Details of these activities should be reported to the Ministry.	Details of the same is submitted to the Ministry of Environment and Forest along with half yearly compliance dated 02.12.2013.

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Sr. No.	Conditions	Compliance Status as on 30-09-2015
2(x)	While filling the storage tanks, compatibility of the chemicals should be ensured for chemical safety. Since 5000 MT capacity is proposed to be created for cryogenic conditions, necessary HAZOP study should be initiated and submitted to the Ministry within three months. Calculations carried out on the basis of EFFECT MODEL for this storage should be rechecked for various accident scenarios. Keeping in view the safety aspects, Horton spheres of 1250 MT capacity each should be preferred.	Separate oil pipe lines and tanks have been provided for POL and Edible grade oil. However the project of storage for products in cryogenic conditions is not taken up.
2(xi)	The measures suggested by the Gujarat State Pollution Control Board in February, 1995 while according "No Objection Certificate" should be strictly followed and authorization certificate required for converting NOC into "consent to operate" should be submitted within three months.	Consent to operate (CC&A) has been obtained from GPCB vide consent no. AWH 60840 valid till 17 th November, 2016.
2(xii)	For ensuring the acceptance of the project by the local people, a Resolution of the Official Panchayat of the Region should be obtained offering their concurrence in writing by the project proponents and submitted to the Ministry by 31st October, 1995.	Resolution from the Panchayat has been obtained and submitted to the Ministry of Environment and Forest on 31 st July, 2012.

	Adani Ports and SEZ Limited	From : April'15 To : September'15
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Half yearly Compliance report of Environment and CRZ Clearance for "Handling facility of General Cargo / LPG /Chemicals and their storage terminal at Navinal Island, Mundra taluka of Kutch district, Gujarat"

Sr. No.	Conditions	Compliance Status as on 30-09-2015
2(xiii)	A permanent staff structure should be created with latest R&D facilities and suitable equipments for environmental and forestry activities through creation of Environmental cell. Adequate funds should be earmarked for this cell.	APSEZL has a well structured Environment Cell, staffed with qualified manpower for implementation of the Environmental Management Plan. Separate budget for the Environment Protection measures is earmarked every year. All environmental and horticulture activities are considered at group level and budget allocation is also done accordingly. • The plan budget for Environment Cell for the year 2015-16 is 484.11 lacs. • The spent budget for Environment Cell for the financial year 2015-16 (till Sept.'15) is 175.88 lacs. • The allocated budget of Horticulture Cell for the year 2015-16 was 486.83 lacs. • The spent budget of Horticulture Cell for the financial year 2015-16 (till Sept.'15) is 363.29 lacs.
2(xiv)	Landsat imagery should be obtained on a continuous basis covering various seasons to study the change in the land use pattern due to the project and project related activities.	Project is completed many years ago and now there is no further change envisaged in the land use due the project.

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Sr. No.	Conditions	Compliance Status as on 30-09-2015
2(xv)	With a view to providing adequate job opportunities to local people, facilities for technical training and development of skills should be made available in consultation with the state Harbour Department, and to this end it must be ensured that there is allocation of adequate funds. The local people should be involved in the afforestation program proposed for the scheme to ensure public participation and success of vegetation programmes.	- Adani Skill development center, Mundra is providing skill development training to the locals. - Preference is given to local people for employment based on their qualification and experience. - Approx. 980 locals (Kutchhi) are employed out of 4169 persons employed by Adani group at Mundra. - Local personnel and horticulture experts are involved in the afforestation programs. - Mangrove afforestation and maintenance at Mundra is being done through active participation of local fishermen. - Details on skill development training imparted during period of April, 15 to September, 15 by Adani Foundation are enclosed as Annexure-3.
2(xvi)	Prior clearance must be taken under the Hazardous Chemicals (manufacture, import and storage) Rules 1989, as amended up to date, from the competent authority. Such clearance will have to be taken prior to the commissioning of the project.	Permission under MSIHC has been obtained and the details of the same has been submitted to Ministry of Environment and Forest along with the half yearly compliance report dated 02.12.2013.
2(xvii)	A detailed progress report should be submitted to the Ministry on each of the conditions stipulated above in respect of the follow-up action taken every six months. The first of these two reports should be sent in by 31.3.1996.	Half yearly compliance report is being submitted regularly. Last half yearly compliance report was submitted to Ministry of Environment and Forest on 01.06.2015 in soft as well as hard copy.

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Sr. No.	Conditions	Compliance Status as on 30-09-2015
2(xviii)	Financial requirements for implementation of the above indicated environmental mitigative measures should be worked out and included in the total cost of the project. Provision for enhancing this allocation in future should also be made.	Separate budget for the Environment Protection measures is earmarked every year. All environmental and horticulture activities are considered at group level and budget allocation is also done accordingly. • The plan budget for Environment Cell for the year 2015-16 is 484.11 lacs. • The spent budget for Environment Cell for the financial year 2015-16 (till Sept.'15) is 175.88 lacs. • The allocated budget of Horticulture Cell for the year 2015-16 was 486.83 lacs. • The spent budget of Horticulture Cell for the financial year 2015-16 (till Sept.'15) is 363.29 lacs.

Annexure – 1



POLLUCON

LABORATORIES PVT. LTD.

Environmental Auditors, Consultants & Analysts.
Cleaner Production / Waste Minimization Facilitator

Recognised by MoEF, New Delhi Under Sec. 12 of Environmental (Protection) Act-1986

"HALF YEARLY ENVIRONMENTAL MONITORING REPORT"

FOR

adaniTM

**ADANI PORTS AND SPECIAL ECONOMIC ZONE LIMITED
TAL: MUNDRA, KUTCH, MUNDRA – 370 421**

**MONITORING PERIOD:
APRIL 2015 TO SEPTEMBER 2015**

PREPARED BY:

Pollucon

POLLUCON LABORATORIES PVT.LTD.

544, BELGIUM TOWERS, RING ROAD, SURAT – 395 003

PHONE/FAX – (+91 261) 2455 751, 2601 106, 2601 224.

E-mail: pollucon@gmail.com

web: www.polluconlab.com

T 0820 - 821

ISO 9001:2008

ISO 14001:2004

OHSAS 18001:2007

H. T. Shah
Lab Manager



Dr. Arun Bajpai
Lab Manager (Q)

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MARINE WATER MONITORING SUMMARY REPORT

RESULTS OF MARINE WATER [M1 LEFT SIDE OF BOCHA CREEK - N 22°45'183" E 069°43'241"]

S R. N O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		July 2015		August 2015		September 2015		Test Method
			SURFA CE	BOTTO M	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.9	8.05	8.01	8.12	8.1	8.15	7.98	8.12	7.58	8.06	8.02	8	IS3025(P11)83R e.02
2	Temperature	°C	30	31	29	30	29	30	28	29	28	29	29	30	IS3025(P9)84Re .02
3	Total Suspended Solids	mg/L	22	16	16	22	12	18	20	22	14	20	14	20	IS3025(P17)84R e.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.4	4.8	5.8	5	5.4	4.4	5.8	4.4	5.6	4.8	5.6	4.6	IS3025(P38)89R e.99
6	Salinity	ppt	40.3	40.9	41.2	41.7	40.2	40.9	41.6	42.2	40.8	41.8	41.2	42.8	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	0.18	BDL*	0.24	BDL*	BDL*	BDL*	APHA(22 nd Edi)55 20D
8	Nitrate as NO ₃	mg/L	0.72	0.89	0.56	0.72	0.34	0.52	0.42	0.58	0.54	0.62	0.532	0.598	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.064	0.077	0.021	0.034	0.028	0.046	0.026	0.04	0.022	0.044	0.03	0.047	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.86	0.96	0.96	1.1	1.2	1.4	1.0	1.2	0.9	1.1	0.924	1.1	IS3025(P34)88C la.2.3
11	Phosphates as PO ₄	mg/L	0.056	0.074	0.084	0.096	0.94	1.04	0.88	0.94	0.72	0.84	1.03	1.215	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	4.1	4.7	1.54	1.85	1.31	1.606	1.45	1.84	1.61	1.82	1.486	1.745	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	6	BDL*	4	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	49750	50440	48770	49060	47690	48140	49850	50510	48186	49760	48593	48878	IS3025(P16)84R e.02
15	COD	mg/L	20	28	24	32	22	28	16	24	18	22	19	28	APHA(22 nd Edi) 5520-D Open Reflux


H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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16	Oxidisable Particular Organic Carbon	%	0.68	0.49	0.5	0.4	0.58	0.48	0.56	0.48	0.52	0.44	0.6	0.44	SOP – PLPL - 07
A	Flora and Fauna														
17	Primary productivity	mgC/L/day	3.2	2.1	2.7	1.575	2.925	0.45	2.25	0.45	1.575	0.563	1.125	0.338	APHA (22 nd Edi) 10200-J
B	Phytoplankton														
18.1	Chlorophyll	mg/m ³	3.79	2.99	2.75	0.99	2.857	1.602	1.682	0.134	1.81	0.134	1.28	0.267	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	BDL*	BDL*	1.54	BDL*	0.98	0.579	1.717	0.128	1.77	0.98	1.39	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	114	154	248	109	292	110	221	59	158	41	147	52	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Diatom	Diatom	Diatom	Diatom	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Thalassiosira sp.</i>	<i>Thalassiosira sp.</i>	<i>Thalassiosira sp.</i>	<i>Thalassiosira sp.</i>	<i>Biddulphia sp.</i>	<i>Nitzschia sp.</i>	<i>Chaetoceros sp.</i>	<i>Fragillaria sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	
			<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Gyrosigma sp.</i>	<i>Gomphonema sp.</i>	<i>Rhizosolenia sp.</i>	<i>Navicula sp.</i>	<i>Rhizosolenia sp.</i>	<i>Gyrosigma sp.</i>	<i>Rhizosolenia sp.</i>	<i>Fragillaria sp.</i>	
			<i>Navicula sp.</i>	<i>Coscinodiscus sp.</i>	<i>Melosira sp.</i>	<i>Coscinodiscus sp.</i>	<i>Pinnularia sp.</i>	<i>Cyclotella sp.</i>	<i>Pinnularia sp.</i>	<i>Cocconeis sp.</i>	<i>Thalassiosira sp.</i>	<i>Cyclotella sp.</i>	<i>Navicula sp.</i>	<i>Pinnularia sp.</i>	
			<i>Melosira sp.</i>	--	<i>Fragillaria sp.</i>	<i>Rhizosolenia sp.</i>	<i>Pinnularia sp.</i>	Green Algae	<i>Navicula sp.</i>	Cyanophyceae	<i>Synedra sp.</i>	<i>Fragillaria sp.</i>	<i>Asterionella sp.</i>	<i>Biddulphia sp.</i>	
			<i>Fragillaria sp.</i>	--	Green algae	--	Cyanophyceae	<i>Chlorella sp.</i>	<i>Gomphonema sp.</i>	<i>Spirulina sp.</i>	Green Algae	Green Algae	<i>Cymbella sp.</i>	Green Algae	
			--	--	<i>Chlorella sp.</i>	--	<i>Microcystis sp.</i>	<i>Pandorina sp.</i>	Cyanophyceae	Green Algae	<i>Oscillatoria sp.</i>	<i>Chlorella sp.</i>	<i>Synedra sp.</i>	<i>Ulothrix sp.</i>	
					<i>Ulothrix</i>		<i>Spirulina sp.</i>		Anabaena sp.	Hydrodictyon sp.	<i>Green Algae</i>		Green Algae	Cyanophyceae	
									Oscillatoria sp.	Spirogyra sp.	<i>Chlorella sp.</i>		<i>Pandorina sp.</i>	<i>Oscillatoria sp.</i>	
									Green Algae		<i>Pediastrum sp.</i>		<i>Pediastrum sp.</i>	<i>Spirulina sp.</i>	
									Volvox sp.				<i>Ulothrix sp.</i>	--	
									Chlorella sp.				Cyanophyceae		
									<i>Pediastrum sp.</i>				<i>Oscillatoria sp.</i>		



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C	Zooplanktons														
19.1	Abundance (Population)	no/m ²	380	270	430	190	250	100	150	40	190	70	280	60	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	<i>Polychaetes</i>	<i>Polychaetes</i>	<i>Polychaete worms</i>	<i>Polychaete worms</i>	Ctenophores	Polychaetes	Polychaetes	Crustaceans	Polychaete Worms	Isopods	Gastropods	Copepods	APHA (22 nd Edi) 10200-G
			<i>Bivalves</i>	<i>Molluscan</i>	<i>Bivalves</i>	<i>Molluscans</i>	Gastropods	Decapods	Krill	Nematodes	Nematodes	Gastropods	Isopods	Polychaete worms	
			<i>Gastropods</i>	<i>Branchiurans</i>	<i>Gastropods</i>	<i>Decapods</i>	Copepods	--	Copepods	Bivalves	Decapods	Decapods	Decapods	Crustaceans	
			<i>Copepods</i>	--	<i>Copepods</i>	<i>Branchiurans</i>	--	--	Crustaceans	--	Molluscan	--	Krill		
			--	--	--	--	--	--	Isopods	--	Snail	--	Nematodes		
			--	--	--	--	--	--	Ostracods	--	--	--	Molluscan		
			--	--	--	--	--	--	--	--	--	--	Copepods		
19.3	Total Biomass	ml/100 m ³	29	18	72	48	79	23	41	8	28	9	38	23	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters														
20.1	Total Bacterial Count	CFU/ml	1522	1481	1620	1500	1740	1460	1824	1320	1740	1260	1130	870	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)92 21-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi .2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



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RESULTS OF SEDIMENT ANALYSIS [M1 LEFT SIDE OF BOCHA CREEK - N 22°45'183" E 069°43'241"]

SR. NO.	TEST PARAMETERS	UNIT	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	Test Method
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.57	0.64	0.49	0.52	0.54	0.352	FCO:2007
2	Phosphorus as P	mg/kg	137	160	139	154	146	146	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	Heavy Metals								
5.1	Aluminum as Al	%	4.8	5	5.2	5	5.4	4.99	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	98	130	176	220	190	189	AAS 3111B
5.3	Manganese as Mn	mg/kg	740	860	910	830	880	789	AAS APHA 3111 B
5.4	Iron as Fe	%	2.05	2.4	2.5	2.08	3.1	2.61	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	59	48	56	60	58	57.96	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	37	54	34	40	36	37.99	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	142	164	156	132	144	143	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	2.6	1.8	1.4	1.02	1.22	1.13	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	Benthic Organisms								
6.1	Macrobenthos	--	Polychaete worms Bivalves Crustaceans	Polychaeteworms Crustaceans Isopods Decapods	Amphipods Mysids Echinoderms	Isopods Mysids Echinoderms Polychaete Worms	Echinoderms Isopods Knill Anthozoans	Crabs Anthozoans Isopods Decapods	APHA (22 nd Edi) 10500-C
6.2	MeioBenthos	--	Gastrophores Smaller Crustaceans	Nematodes Smaller Crustaceans	Copepods	Hydrozoan Copepods	Nematodes Foraminiferans	Copepods Foraminiferans	APHA (22 nd Edi) 10500-C
2	Population	no/m ²	308	252	377	440	377	288	APHA (22 nd Edi) 10500-C



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

RESULTS OF MARINE WATER [M2 MOUTH OF BOCHA & NAVINAL CREEK - N 22°44'239" E 069°43'757"]

S R. N O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		July 2015		August 2015		September 2015		Test Method
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.05	8.1	8.1	8.17	7.95	8.02	8.25	8.38	8.14	8.2	7.91	8.03	IS3025(P11)83R e.02
2	Temperature	°C	31	31	30	31	27	28	29	30	29	30	29	30	IS3025(P9)84Re .02
3	Total Suspended Solids	mg/L	24	38	18	20	21	28	24	34	22	30	16	26	IS3025(P17)84R e.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL *	BDL *	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.4	5.4	4.8	5.6	4.6	5.4	4.6	5.8	4.8	5.4	4.4	IS3025(P38)89R e.99
6	Salinity	ppt	43.6	44.2	41.8	42.2	42.2	42.7	40.4	41.2	39.8	41.4	40.8	42.6	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	0.84	BDL*	0.52	BDL*	0.3	BDL*	0.4	BDL*	0.4	BDL*	APHA(22 nd Edi)5 520D
8	Nitrate as NO ₃	mg/L	0.64	0.82	0.54	0.66	0.72	0.94	0.54	0.76	0.68	0.82	0.34	0.458	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.072	0.054	0.028	0.054	0.021	0.026	0.03	0.05	0.026	0.052	0.018	0.036	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.32	0.46	0.42	0.51	0.81	0.72	0.8	1.0	0.72	0.9	0.32	0.406	IS3025(P34)88C la.2.3
11	Phosphates as PO ₄	mg/L	0.086	0.062	0.14	0.094	0.18	0.11	0.2	0.14	0.18	0.1	0.36	0.27	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	2.1	2.6	1.5	1.2	1.55	1.68	1.4	1.81	1.44	1.82	0.678	0.9	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	3.2	BDL*	1.2	BDL*	1.8	BDL*	1.6	BDL*	1.4	BDL*	1.4	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	49750	50400	48210	49170	50710	51240	48930	49900	48580	49990	47990	48380	IS3025(P16)84R e.02
15	COD	mg/L	16	18	12	20	18	20	20	22	16	18	14	19	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.82	0.32	0.62	0.48	0.44	0.48	0.4	0.44	0.56	0.46	0.34	0.38	SOP – PLPL - 07
A	Flora and Fauna														



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17	Primary productivity	mgC/L /day	3.2	1.0	1.57	0.45	2.02	0.225	2.7	0.675	1.68	0.45	1.238	0.225	APHA (22nd Edi) 10200-J
B	Phytoplankton														
18.1	Chlorophyll	mg/m ₃	5.79	5.17	1.22	0.854	2.59	0.187	2.163	0.561	1.92	0.561	1.095	0.134	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ₃	BDL*	BDL*	1.37	1.99	BDL*	2.39	BDL*	0.897	0.227	0.897	1.671	1.493	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	170	110	198	50	245	74	254	67	169	39	155	45	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Diatom	Diatom	Diatom	Diatom	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Nitzschia sp</i>	<i>Nitzschia sp</i>	<i>Nitzschia sp.</i>	<i>Nitzschia sp.</i>	<i>Coscinodiscus sp.</i>	<i>Navicula sp.</i>	<i>Coscinodiscus sp.</i>	<i>Navicula sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Navicula sp.</i>	<i>Navicula sp.</i>	
			<i>Melosira sp</i>	<i>Coscinodiscus sp</i>	<i>Biddulphia sp.</i>	<i>Coscinodiscus sp.</i>	<i>Rhizosolenia sp.</i>	<i>Biddulphia sp.</i>	<i>Rhizosolenia sp.</i>	<i>Biddulphia sp.</i>	<i>Synedra sp.</i>	<i>Cyclotella sp.</i>	<i>Synedra sp.</i>	<i>Fragillaria sp.</i>	
			<i>Asterionella sp</i>	<i>Pleurosigma sp.</i>	<i>Fragillaria sp.</i>	<i>Synedra sp.</i>	<i>Thalassiosira sp.</i>	<i>Nitzschia sp.</i>	<i>Gomphonema sp.</i>	<i>Pinnularia sp.</i>	<i>Rhizosolenia sp.</i>	<i>Fragillaria sp.</i>	<i>Coscinodiscus sp.</i>	<i>Gyrosigma sp.</i>	
			<i>Coscinodiscus sp</i>	--	<i>Coscinodiscus sp.</i>	Cynophyceae	Green Algae	<i>Pleurosigma sp.</i>	<i>Cymbella sp.</i>	<i>Gyrosigma sp.</i>	<i>Pleurosigma sp.</i>	Green Algae	<i>Asterionella sp.</i>	<i>Pinnularia sp.</i>	
			<i>Thalassiosira sp</i>	--	<i>Thalassiosira sp.</i>	<i>Oscillatoria sp.</i>	<i>Ankistrodesmus sp.</i>	Green Algae	<i>Synedra sp.</i>	Green Algae	<i>Coscinodiscus sp.</i>	<i>Spirogyra sp.</i>	<i>Gyrosigma sp.</i>	<i>cyanophyceae</i>	
			Desmids	--	Desmids	--	<i>Pandorina sp.</i>	<i>Volvox sp.</i>	<i>Tabellaria sp.</i>	<i>Scenedesmus sp.</i>	Green Algae	<i>Chlorella sp.</i>	<i>Cocconeis sp.</i>	<i>Lyngbya sp.</i>	
			<i>Closterium sp</i>	--	<i>Closterium sp.</i>	--	<i>Chlorella sp.</i>	--	<i>Green Algae</i>	<i>Spirogyra sp.</i>	Chlorella sp.	--	<i>Pinnularia sp.</i>	<i>Oscillatoria sp.</i>	
			--	--	--	--	<i>Volvox sp.</i>	--	<i>Ankistrodesmus sp.</i>	--	Pediastrum sp.	--	Green Algae	--	
			--	--	--	--	--	--	<i>Pediastrum sp.</i>	--	Desmids	--	<i>Pandorina sp.</i>	--	
			--	--	--	--	--	--	<i>Ulothrix sp.</i>	--	Cosmarium sp.	--	<i>Chlorella sp.</i>	--	
			--	--	--	--	--	--	<i>Desmids</i>	--	Cyanophyceae	--	Cyanophyceae	--	
			--	--	--	--	--	--	<i>Closterium sp.</i>	--	Oscillatoria sp.	--	<i>Oscillatoria sp.</i>	--	
			--	--	--	--	--	--	--	--	--	--	<i>Nostoc sp.</i>	--	
C	Zooplanktons														
19.1	Abundance (Population)	no/m ²	400	200	370	120	400	150	170	30	200	40	320	100	APHA (22 nd Edi) 10200-G



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Lab Manager (Q)

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19.2	Name of Group Number and name of group species of each group	--	<i>Echinoderms</i>	<i>Polychaete worms</i>	<i>Gastropods</i>	<i>Foraminiferans</i>	Polychaetes Worms	Gastropods	Krill	Polychaete Worms	Copepods	Molluscs	Crustaceans	Gastropods	APHA (22 nd Edi) 10200-G
			<i>Gastropods</i>	<i>Foraminiferans</i>	<i>Polychaete worms</i>	<i>Ostracods</i>	Nematodes	Mysids	Copepods	Ctenophores	Isopods	Gastropods	Copepods	Polychaete worms	
			<i>Polychaete worms</i>	--	<i>Nematods</i>	--	Echinoderms	Snail	Gastropods	Cyclops	Gastropods	--	Krill	--	
			<i>Nematodes</i>	--	--	--	--	--	Decapods	--	Polychaete Worms	--	Polychaete worms	--	
			--	--	--	--	--	--	Lamellibranches	--	--	--	Decapods	--	
19.3	Total Biomass	ml/100 m ³	29	14	30	4	88	34	55	11	62	7	59	6	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters														
20.1	Total Bacterial Count	CFU/ml	1745	1904	1850	2020	1880	2100	1930	1580	1850	1620	1670	1420	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)9 221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Ed i.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF SEDIMENT ANALYSIS [M2 MOUTH OF BOCHA & NAVINAL CREEK – N 22°44'239" E 069°43'757"]

SR. NO.	TEST PARAMETERS	UNIT	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	Test Method
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.71	0.56	0.48	0.54	0.52	0.366	FCO:2007
2	Phosphorus as P	mg/kg	140	164	210	180	200	141	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	Heavy Metals								
5.1	Aluminum as Al	%	6.4	5.6	5.4	5.6	5.2	5.2	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	140	116	128	180	142	135	AAS 3111B
5.3	Manganese as Mn	mg/kg	620	780	810	770	806	609	AAS APHA 3111 B
5.4	Iron as Fe	%	2.8	2.4	2.72	2.16	2.62	2.01	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	48	56	54	58	60	41.99	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	52	39	158	110	158	97.9	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	114	146	163	148	156	157	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	2.1	1.9	1.2	1.16	1.24	1.58	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	0.8	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	Benthic Organisms								
6.1	Macrobenthos	--	Polychaete worms Bivalves Crustaceans	Mysids Polychaeteworms Crustaceans	Polychaete Worms Echinoderms Snail Crab	Isopods Echinoderms Decapods Crab Amphipods	Polychaete Worms Anthozoans Echinoderms	Echinoderms Polychaete worms Isopods Prawn Decapods	APHA (22 nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes	Nematodes Copepods	Foraminiferans Hydrozoa	Foraminiferans Copepods	Ostracodes Hydrozoa	Nematodes Copepods	APHA (22 nd Edi) 10500-C
2	Population	no/m ²	240	440	503	503	440	337	APHA (22 nd Edi) 10500-C



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF MARINE WATER [M3 EAST OF BOCHA ISLAND - N 22°46'530" E 069°41'690"]

SR. NO.	TEST PARAMETERS	UNIT	July 2015		August 2015		Test Method
			SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.62	8.08	7.55	7.92	IS3025(P11)83Re.02
2	Temperature	°C	29	30	29	30	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	22	25	30	38	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.4	4.6	5.6	4.8	IS3025(P38)89Re.99
6	Salinity	ppt	42.8	43.02	41.66	42.92	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	0.2	BDL*	0.3	BDL*	APHA(22 nd Edi)5520D
8	Nitrate as NO ₃	mg/L	0.3	0.42	0.28	0.36	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.019	0.028	0.02	0.026	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.8	0.9	0.7	0.8	IS3025(P34)88Cla.2.3
11	Phosphates as PO ₄	mg/L	0.64	0.81	0.58	0.72	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.12	1.35	1.08	1.21	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	51288	51492	49920	51430	IS3025(P16)84Re.02
15	COD	mg/L	18	28	20	26	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.31	0.2	0.28	0.21	SOP – PLPL - 07
A							
17	Primary productivity	mgC/L/day	2.25	0.225	1.46	0.113	APHA (22 nd Edi) 10200-J
B							
18.1	Chlorophyll	mg/m ³	2.05	0.053	1.01	0.24	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	0.523	2.52	1.56	2.17	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	254	25	178	18	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Synedra sp.</i>	<i>Nitzschia sp.</i>	<i>Cymbella sp.</i>	<i>Fragillaria sp.</i>	
			<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Pinnularia sp.</i>	<i>Pinnularia sp.</i>	
			<i>Rhizosolenia sp.</i>	<i>Gyro sigma sp.</i>	<i>Coscinodiscus sp.</i>	<i>Navicula sp.</i>	
			<i>Thalassiosira sp.</i>	Green Algae	<i>Rhizosolenia sp.</i>	<i>Nitzschia sp.</i>	
			<i>Coscinodiscus sp.</i>	<i>Chlorella sp.</i>	Green Algae	<i>Gyro sigma sp.</i>	
			Green Algae	Desmids	<i>Chlorella sp.</i>	Green Algae	
			<i>Scenedesmus sp.</i>	<i>Closterium sp.</i>	<i>Oedogonium sp.</i>	<i>Chlorella sp.</i>	
			<i>Chlorella sp.</i>	--	<i>Oscillatoria sp.</i>	--	
			<i>Spirogyra sp.</i>	--	<i>Anabaena sp.</i>	--	
			Cyanophyceae	--	--	--	
			Nostoc sp.	--	--	--	
			Oscillatoria sp.	--	--	--	
			--	--	--	--	



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Lab Manager (Q)

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C			--	--	--	--	
19.1	Abundance (Population)	no/m ²	150	30	213	25	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Polychaete Worms	Gastropods	Copepods	Polychaete Worms	APHA (22 nd Edi) 10200-G
			Echinoderms	Isopods	Ostracods	Decapods	
			Molluscs	--	Crustaceans	Nauplies	
			--	--	Krill	--	
			--	--	Ctenophores	--	
19.3	Total Biomass	ml/100 m ³	46	7	54	9	APHA (22 nd Edi) 10200-G
D							
20.1	Total Bacterial Count	CFU/ml	1840	1550	1680	1375	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	APHA(22 nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



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Lab Manager (Q)

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RESULTS OF SEDIMENT ANALYSIS [M3 EAST OF BOCHA ISLAND - N 22°46'530" E 069°41'690"]

SR. NO.	TEST PARAMETERS	UNIT	July 2015	August 2015	Test Method
			SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.52	0.58	FCO:2007
2	Phosphorus as P	mg/kg	150	146	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	PLPL-TPH
5					
5.1	Aluminum as Al	%	5.4	4.8	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	140	180	AAS 3111B
5.3	Manganese as Mn	mg/kg	890	860	AAS APHA 3111 B
5.4	Iron as Fe	%	2.02	1.88	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	52	50	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	36	38	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	138	140	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	1.6	1.46	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	AAS APHA- 3112 B
6					
6.1	Macrobenthos	--	Polychaete Worms Bivalves Anthozoans	Polychaete Worms Echinoderms Bivalves Mysids Decapods	APHA (22 nd Edi) 10500-C
6.2	MeioBenthos	--	Foraminiferans Copepods	Nematodes Bryozoans	APHA (22 nd Edi) 10500-C
2	Population	no/m ²	337	385	APHA (22 nd Edi) 10500-C



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF MARINE WATER [M4 JUNA BANDAR N 22°47'57" E 069°43'620"]

S R. N O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		July 2015		August 2015		September 2015		Test Method
			SURFAC E	BOTT OM	SURFAC E	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.95	8.1	8.1	8.2	8.06	8.15	8.26	8.4	8.17	8.34	8.02	8	IS3025(P11)83R e.02
2	Temperature	°C	31	32	29	31	28	30	28	29	29	30	29	30	IS3025(P9)84Re .02
3	Total Suspended Solids	mg/L	18	20	26	30	24	28	26	30	28	30	28	32	IS3025(P17)84R e.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.4	4	5.6	5	5.8	4.8	5.4	4.8	5.6	5	5.8	4.8	IS3025(P38)89R e.99
6	Salinity	ppt	43.1	44.2	42.7	43.2	40.2	41.6	40	41.2	41.6	42.8	38.4	39.1	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22 nd Edi)55 20D
8	Nitrate as NO ₃	mg/L	0.44	0.53	0.32	0.18	0.44	0.28	0.48	0.26	0.4	0.24	0.384	0.222	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.052	0.068	0.058	0.08	0.062	0.084	0.058	0.07	0.06	0.082	0.054	0.076	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.72	0.8	0.96	1.24	1.1	1.26	1.2	1.3	0.76	0.94	1.01	1.29	IS3025(P34)88CI a.2.3
11	Phosphates as PO ₄	mg/L	0.044	0.058	0.076	0.086	0.094	0.12	0.44	0.56	0.36	0.44	0.54	0.675	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	3.1	3.6	1.34	1.8	1.6	1.62	1.74	1.6	1.24	1.28	1.448	1.588	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	52100	53200	55760	52240	53940	54000	53070	53520	54120	55846	45313	46173	IS3025(P16)84R e.02
15	COD	mg/L	20	26	16	20	24	32	22	30	18	22	14	24	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.96	0.32	0.6	0.44	0.52	0.44	0.48	0.46	0.82	0.4	0.5	0.46	SOP – PLPL - 07
A Flora and Fauna															
17	Primary productivity	mgC/L/day	3.06	1.9	2.925	0.675	2.475	0.9	1.575	0.225	1.35	0.563	1.575	0.675	APHA (22 nd Edi) 10200-J



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B	Phytoplankton														
18.1	Chlorophyll	mg/m ³	4.2	3.2	2.62	0.64	2.723	0.107	1.148	0.107	1.6	0.187	1.89	0.16	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	BDL*	BDL*	1.94	BDL*	2.472	0.459	1.837	0.36	1.757	0.067	1.69	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	218	180	338	88	304	35	196	24	175	29	162	33	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Diatom	Diatom	Diatom	Diatom	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	APHA (22 nd Edi) 10200-H
			<i>Biddulphia sp.</i>	<i>Biddulphia sp.</i>	<i>Biddulphia sp.</i>	<i>Cymbella sp.</i>	<i>Synedra sp.</i>	<i>Pleurosigma sp.</i>	<i>Asterionella sp.</i>	<i>Cocconeis sp.</i>	<i>Asterionella sp.</i>	<i>Coscinodiscus sp.</i>	<i>Asterionella sp.</i>	<i>Tabellaria sp.</i>	
			<i>Nitzschia sp.</i>	<i>Fragillaria sp.</i>	<i>Thalassionema sp.</i>	<i>Gyrosigna sp.</i>	<i>Biddulphia sp.</i>	<i>Navicula sp.</i>	<i>Biddulphia sp.</i>	<i>Pinnularia sp.</i>	<i>Biddulphia sp.</i>	<i>Fragillaria sp.</i>	<i>Coscinodiscus sp.</i>	<i>Navicula sp.</i>	
			<i>Thalassiosira sp.</i>	<i>Gyrosigma sp.</i>	<i>Fragillaria sp.</i>	<i>Nitzschia sp.</i>	<i>Nitzschia sp.</i>	<i>Skeletonema sp.</i>	<i>Coscinodiscus sp.</i>	<i>Gyrosigma sp.</i>	<i>Chaetoceros sp.</i>	<i>Navicula sp.</i>	<i>Navicula sp.</i>	<i>Gyrosigma sp.</i>	
			<i>Fragillaria sp.</i>	--	<i>Pleurosigma sp.</i>	<i>Biddulphia sp.</i>	<i>Fragillaria sp.</i>	<i>Pleurosigma sp.</i>	<i>Pinnularia sp.</i>	<i>Synedra sp.</i>	<i>Coscinodiscus sp.</i>	<i>Synedra sp.</i>	<i>Nitzschia sp.</i>	<i>Coscinodiscus sp.</i>	
			<i>Pleurosigma sp.</i>	--	Green algae	Green algae	<i>Cyclotella sp.</i>	--	<i>Skeletonema sp.</i>	Green Algae	<i>Gyrosigma sp.</i>	<i>Pinnularia sp.</i>	<i>Fragillaria sp.</i>	<i>Asterionella sp.</i>	
			--	--	<i>Chlorella sp.</i>	<i>Oscillatoria sp.</i>	Green Algae	--	Green Algae	<i>Spirogyra sp.</i>	Green Algae	Green Algae	<i>Surirella sp.</i>	Cyanophyceae	
			--	--	--	--	<i>Pandorina sp.</i>	--	<i>Pediastrum sp.</i>	<i>Volvox sp.</i>	<i>Pandorina sp.</i>	<i>Chlorella sp.</i>	<i>Thalassionema sp.</i>	<i>Oscillatoria sp.</i>	
			--	--	--	--	<i>Ulothrix sp.</i>	--	<i>Chlorella sp.</i>	--	<i>Pediastrum sp.</i>	--	Green Algae	<i>Nostoc sp.</i>	
			--	--	--	--	<i>Volvox sp.</i>	--	Cyanophyceae	--	Desmids	--	<i>Ankistrodesmus sp.</i>	--	
			--	--	--	--	--	--	Microcystis sp.	--	<i>Cosmarium sp.</i>	--	<i>Chlorella sp.</i>	--	
			--	--	--	--	--	--	<i>Nostoc sp.</i>	--	--	--	<i>Pandorina sp.</i>	--	
			--	--	--	--	--	--	--	--	--	--	Cyanophyceae	--	
			--	--	--	--	--	--	--	--	--	--	<i>Anabaena sp.</i>	--	
--	--	--	--	--	--	--	--	--	--	<i>Oscillatoria sp.</i>	--				
C	Zooplanktons														
19	Abundance	no/m ²	310	198	440	210	230	160	130	20	183	67	267	133	APHA (22 nd Edi)


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.1	(Population)															10200-G
19.2	Name of Group Number and name of group species of each group	--	Hydrozoans	Amphipods	Hydrozoans	Amphipods	Chaetognathes	Polychaete Worms	Decapods	Ostracods	Copepods	Decapods	Gastropods	Ctenophores	APHA (22 nd Edi) 10200-G	
			Anthozoans	Polychaetes	Anthozoans	Polychaete worms	Copepods	Decapods	Copepods	Lamellibranches	Krill	Ostracods	Copepods	Gastropods		
			Gastropods	--	Gastropods	Decapods	Krill	Copepods	Krill	Decapods	Polychaete Worms	Gastropods	Decapods	Krill		
			Foraminiferans	--	Chaetognaths	Echinoderms	Daphania	--	Ostracods	--	Molluscs	--	Ostracods	Nematodes		
			--	--	--	--	Isopods	--	Gastropods	--	--	--	Krill	--		
			--	--	--	--	--	--	--	--	--	--	Crustaceans	--		
19.3	Total Biomass	ml/100 m ³	32	10	84	29	56	12	43	7	38	10	75	15	APHA (22 nd Edi) 10200-G	
D	Microbiological Parameters															
20.1	Total Bacterial Count	CFU/ml	1613	1554	1710	1625	1820	1740	1810	1285	1880	1310	1850	1680	IS 5402:2002	
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)9221-D	
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)	
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002	
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)	
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)	
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)	



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Lab Manager (Q)

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RESULTS OF SEDIMENT ANALYSIS [M4 JUNA BANDAR N 22°47'577" E 069°43'620"]

SR. NO.	TEST PARAMETERS	UNIT	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	Test Method
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.51	0.44	0.53	0.56	0.48	0.495	FCO:2007
2	Phosphorus as P	mg/kg	156	168	192	210	178	172	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	Heavy Metals								
5.1	Aluminum as Al	%	5.6	5.3	5.06	5.12	5.22	5.21	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	118	146	174	190	158	127	AAS 3111B
5.3	Manganese as Mn	mg/kg	1020	920	1020	980	890	896	AAS APHA 3111 B
5.4	Iron as Fe	%	2.62	2.5	2.12	2.46	3.02	2.33	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	56	52	46	62	44	49.9	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	42	58	38	44	54	45.9	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	158	174	190	200	186	179	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	2.8	2.4	1.9	1.78	2.06	1.94	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	Benthic Organisms								
6.1	Macrobenthos	--	Polychaete worms Snails Echinoderms	Polychaeteworms Decapods Amphipods Echinoderms	Polychaete Worms Bivalves Crabs Amphipods	Chaetognathes Bivalves Anthozoans	Amphipods Isopods Decapods Echinoderms Crabs	Polychaete worms Echinoderms Isopods Anthozoans	APHA (22 nd Edi) 10500-C
6.2	MeioBenthos	--	Copepods Nematodes	Nematodes Copepods	Nematodes Hydrozoa	Nematodes Bryozoans Copepods	Nematodes	Namatodes Foraminiferans Hydrozoa	APHA (22 nd Edi) 10500-C
2	Population	no/m ²	336	385	529	337	288	440	APHA (22 nd Edi) 10500-C



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Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF MARINE WATER [M5 TOWARDS WESTERN SIDE OF EAST PORT – N 22°46'041" E 069°47'296"]

S. R. N. O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		July 2015		August 2015		September 2015		Test Method
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.95	8.1	8.02	8.15	8.15	8.3	8.22	8.42	8.14	8.28	8.08	8.14	IS3025(P11)83R e.02
2	Temperature	°C	31	32	29	30	30	30	27	28	29	30	28	29	IS3025(P9)84Re .02
3	Total Suspended Solids	mg/L	12	14	10	16	18	21	26	34	20	32	26	30	IS3025(P17)84R e.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL *	BDL *	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.4	4.6	5.6	4.4	6	5	5.6	4.8	5.4	4.8	5.4	4.6	IS3025(P38)89R e.99
6	Salinity	ppt	40.6	41.4	40.9	41.3	37.8	38.1	37.6	38	38.4	39.2	39.2	40.4	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	0.76	BDL*	0.32	BDL *	0.26	BDL*	0.44	BDL*	BDL*	BDL*	APHA(22 nd Edi)55 20D
8	Nitrate as NO ₃	mg/L	0.72	0.78	0.42	0.46	0.56	0.62	0.5	0.56	0.44	0.5	0.518	0.607	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.056	0.044	0.02	0.014	0.034	0.024	0.022	0.02	0.024	0.038	0.036	0.025	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.28	0.4	0.21	0.34	0.44	0.6	0.54	0.84	0.38	0.46	0.48	0.619	IS3025(P34)88CI a.2.3
11	Phosphates as PO ₄	mg/L	0.09	0.074	0.11	0.062	0.132	0.094	0.32	0.18	0.26	0.16	0.45	0.27	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.8	2.4	0.55	0.53	0.13	0.82	1.08	1.4	0.86	0.998	1.034	1.251	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	2.2	BDL*	2.8	BDL*	0.914	1.244	0.502	0.618	0.416	0.72	0.42	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	48600	49690	47960	48340	47270	47780	46890	47560	47820	48360	45966	46874	IS3025(P16)84R e.02
15	COD	mg/L	12	14	18	24	12	16	14	18	16	20	9	24	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.64	0.44	0.56	0.44	0.62	0.48	0.52	0.48	0.54	0.5	0.5	0.42	SOP – PLPL - 07
A Flora and Fauna															
17	Primary productivity	mgC/L /day	2.8	1.1	1.8	0.675	2.7	1.125	1.8	0.675	1.12	0.338	1.688	0.563	APHA (22 nd Edi) 10200-J



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B	Phytoplankton														
18.1	Chlorophyll	mg/m ³	4.4	4	1.44	0.56	3.124	0.267	1.469	0.134	1.7	0.721	1.362	0.294	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	BDL*	1.13	2.11	BDL *	2.312	0.363	0.951	0.123	0.363	0.806	0.959	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	330	290	212	56	323	77	184	17	205	35	215	40	APHA (22 nd Ed) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Green algae	Diatom	Green algae	Diatom	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	Bacillariop hyceae	APHA (22 nd Edi) 10200-H
			<i>Pandori na sp.</i>	<i>Rhilosol eniass sp.</i>	<i>Scenede smus sp.</i>	<i>Navicula sp.</i>	<i>Biddulphia sp.</i>	<i>Thallasio nema sp.</i>	<i>Gomphon ema sp.</i>	<i>Navicula sp.</i>	<i>Thallasiosi ra sp</i>	<i>Nitzschia sp.</i>	<i>Rhizosolen ia sp.</i>	<i>Nitzschia sp.</i>	
			<i>Scenede smus sp.</i>	<i>Melosira sp.</i>	Diatom	<i>Fragillaria sp.</i>	<i>Cymbella sp.</i>	<i>Pinnularia sp.</i>	<i>Rhizosolen ia sp.</i>	<i>Fragillaria sp.</i>	<i>Rhizosolen ia sp.</i>	<i>Fragillaria sp.</i>	<i>Synedra sp.</i>	<i>Pinnularia sp.</i>	
			Diatom	<i>Navicula sp.</i>	<i>Nitzschi a sp.</i>	<i>Pleurosig ma sp.</i>	<i>Pleurosig ma sp.</i>	<i>Rhizosolen ia sp.</i>	<i>Synedra sp.</i>	<i>Pinnularia sp.</i>	<i>Pleurosig ma sp.</i>	<i>Biddulphia sp.</i>	<i>Navicula sp.</i>	<i>Fragillaria sp.</i>	
			<i>Nitzschi a sp</i>	--	<i>Navicula sp.</i>	Green algae	Cyanophy ceae	Green Algae	<i>Nitzschia sp.</i>	Cyanophy ceae	<i>Nitzschia sp.</i>	<i>Synedra sp.</i>	<i>Coscinodis cus sp.</i>	<i>Biddulphia sp.</i>	
			<i>Coscino discus sp</i>	--	<i>Coscino discus sp.</i>	<i>Chlorella sp.</i>	<i>Oscillator i a sp.</i>	<i>Chlorella sp.</i>	<i>Coscinodis cus sp.</i>	<i>Chlorella sp.</i>	<i>Synedra sp.</i>	Green Algae	<i>Skeletone ma sp.</i>	Cyanophy ceae	
			<i>Fragillari a sp.</i>	--	<i>Fragillari a sp.</i>	--	<i>Spirulina sp.</i>	<i>Oedogoni um sp.</i>	Green Algae	<i>Oscillator i a sp.</i>	<i>Coscinodis cus sp.</i>	<i>Chlorella sp.</i>	Green Algae	<i>Anabaena sp.</i>	
			--	--	<i>Acanant hes sp.</i>	--	--	<i>Pandorina sp.</i>	Chlorella sp.	<i>Anabaena sp.</i>	<i>Green Algae</i>	<i>Pediastru m sp.</i>	<i>Spirogyra sp.</i>	<i>Nostoc sp.</i>	
			--	--	--	--	--	--	Pandorina sp.	--	<i>Pandorina sp.</i>	--	<i>Pediastru m sp.</i>	--	
			--	--	--	--	--	--	Spirogyra sp.	--	<i>Chlorella sp.</i>	--	<i>Hydrodicty on sp.</i>	--	
			--	--	--	--	--	--	--	--	<i>Cyanophy ceae</i>	--	Desmids	--	
			--	--	--	--	--	--	--	--	<i>Nostoc sp.</i>	--	<i>Cosmariu m sp.</i>	--	
C	Zooplanktons														
19.1	Abundance (Population)	no/m ²	560	280	250	180	290	110	160	40	150	80	260	60	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	<i>Gastrop ods</i>	<i>Ostraco ds</i>	<i>Gastrop ods</i>	<i>Ostracods</i>	Copepods	Gastropod s	Copepods	Gastropod s	Copepods	Decapods	Copepods	Copepods	APHA (22 nd Edi) 10200-G
			<i>Nemato des</i>	<i>Gastrop ods</i>	<i>Nemato ds</i>	<i>Polychaete worms</i>	Decapods	Polychaet e Worms	Cyclops	Ctenophor es	Molluscan s	Bivalves	Cyclops	Polychaet e worms	


H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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			Amphipods	--	Chaetognaths	Snails	Ostracods	--	Ostracods	Decapods	Ostracods	Nematodes	Decapods	Ostracods	
			Chaetognaths	--	--	--	Krill	--	Krill	--	Polychaete Worms	--	Krill	--	
			--	--	--	--	--	--	Polychaete Worms & Gastropods	--	--	--	Polychaete worms	--	
19.3	Total Biomass	ml/100 m ³	31	22	25	11	97	17	35	4	57	11	69	11	APHA (22 nd Edi) 10200-G
D Microbiological Parameters															
20.1	Total Bacterial Count	CFU/ml	1495	1318	1586	1227	1886	1430	1580	1140	1650	1390	1830	1630	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF SEDIMENT ANALYSIS [M5 TOWARDS WESTERN SIDE OF EAST PORT – N 22°46'041" E 069°47'296"]

SR. NO.	TEST PARAMETERS	UNIT	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	Test Method
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.81	0.71	0.61	0.64	0.66	0.546	FCO:2007
2	Phosphorus as P	mg/kg	110	138	162	200	198	148	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	Heavy Metals								
5.1	Aluminum as Al	%	6.8	6.2	5.7	5.2	5.4	5.39	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	110	98	114	128	118	131	AAS 3111B
5.3	Manganese as Mn	mg/kg	580	690	824	990	788	789	AAS APHA 3111 B
5.4	Iron as Fe	%	2.9	2.7	2.94	2.14	2.56	2.09	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	38	50.2	44.6	52.4	48.44	46.77	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	64	44	32.8	40.2	36.68	36.39	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	140	153	174	210	196	161	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	2.6	2.1	1.62	1.02	1.44	1.8	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	Benthic Organisms								
6.1	Macrobenthos	--	Polychaete worms Snails Crustaceans	Polychaeteworms Crustaceans Echinoderms	Bivalves Isopods Mysids Polychaete Worms Anthozoans Lobsters	Amphipods Decapods Crustaceans Lobsters	Polychaete Worms Decapods Crustaceans Crabs	Crabs Mysids Decapods Bivalves Polychaete worms	APHA (22 nd Edi) 10500-C
6.2	MeioBenthos	--	Foraminiferans Nematodes	Nematodes Forminiferans	Bryozoan Copepods Ciliates	Nematods Ostracodes Hydrozoa	Nematods Foraminiferans	Gastrotriches Ostracods	APHA (22 nd Edi) 10500-C
2	Population	no/m ²	288	377	476	385	433	385	APHA (22 nd Edi) 10500-C



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Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF MARINE WATER [M7 EAST PORT N 22°47'120" E 069°47'110"]

S R. N O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		July 2015		August 2015		September 2015		Test Method
			SURFA CE	BOTT OM	SURFACE	BOTT OM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.07	8.17	8.15	8.17	8.05	8.18	8.19	8.23	7.95	8.14	8.1	8.18	IS3025(P11)83R e.02
2	Temperature	°C	31	32	30	31	29	30	28	29	28	29	29	30	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	14	21	20	26	14	18	18	24	16	22	18	22	IS3025(P17)84R e.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL *	BDL *	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03E dition2.1
5	Dissolved Oxygen	mg/L	5.6	4.4	5.8	5	5.4	4.8	5.4	4.6	5.6	4.6	5.6	4.8	IS3025(P38)89R e.99
6	Salinity	ppt	37.5	38.4	38.6	39.2	38.1	38.6	37.8	38	37.8	38.3	38.1	39.2	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	0.44	BDL *	0.16	BDL*	0.12	BDL*	BDL*	BDL*	APHA(22 nd Edi)55 20D
8	Nitrate as NO ₃	mg/L	0.58	0.84	0.68	0.79	0.36	0.48	0.48	0.62	0.52	0.78	0.681	0.784	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.066	0.052	0.023	0.018	0.014	0.026	0.022	0.03	0.046	0.032	0.063	0.05	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.18	0.32	0.11	0.28	0.32	0.58	0.34	0.46	0.26	0.5	0.295	0.554	IS3025(P34)88CI a.2.3
11	Phosphates as PO ₄	mg/L	0.058	0.084	0.081	0.102	0.13	0.15	0.15	0.18	0.14	0.16	0.54	0.585	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.6	2.7	0.81	1.1	0.69	1.08	0.86	1.12	0.826	1.32	1.039	1.189	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	1.8	BDL*	BDL*	BDL*	BDL*	BDL*	2.6	BDL*	2.4	BDL*	1.4	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	43621	44511	44860	45380	43660	44270	43880	44220	43860	44428	43186	43828	IS3025(P16)84R e.02
15	COD	mg/L	18	12	16	20	24	30	24	28	22	28	24	28	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.88	0.56	0.66	0.52	0.64	0.48	0.58	0.5	0.66	0.54	0.82	0.58	SOP – PLPL - 07
A Flora and Fauna															
17	Primary productivity	mgC/L	4.0	2.6	2.25	1.12	2.25	0.675	2.02	0.9	1.68	0.113	1.35	0.45	APHA (22 nd Edi)



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		/day													10200-J	
B	Phytoplankton															
18.1	Chlorophyll	mg/m ³	3.87	3.6	1.55	1.34	2.99	0.347	1.469	0.133	1.28	0.187	1.682	0.107	APHA (22 nd Edi) 10200-H	
18.2	Phaeophytin	mg/m ³	BDL*	BDL*	1.03	1.24	BDL*	2.232	0.849	2.44	1.03	2.39	0.598	2.02	APHA (22 nd Edi) 10200-H	
18.3	Cell Count	Unit x 10 ³ /L	210	190	285	68	312	42	204	31	215	20	227	29	APHA (22 nd Edi) 10200-H	
18.4	Name of Group Number and name of group species of each group	--	Diatom	Diatom	Diatom	Diatom	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H	
			<i>Thalassiasira sp.</i>	<i>Biddulphia sp.</i>	<i>Thalassionema sp.</i>	<i>Biddulphia sp.</i>	<i>Nitzschia sp.</i>	<i>Fragillaria sp.</i>	<i>Nitzschia sp.</i>	<i>Fragillaria sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>		
			<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Nitzschia sp.</i>	<i>Fragillaria sp.</i>	<i>Fragillaria sp.</i>	<i>Coscinodiscus sp.</i>	<i>Fragillaria sp.</i>	<i>Biddulphia sp.</i>	<i>Coscinodiscus sp.</i>	<i>Nitzschia sp.</i>	<i>Synedra sp.</i>	<i>Fragillaria sp.</i>		
			<i>Fragillaria sp.</i>	<i>Melosira sp.</i>	<i>Fragillaria sp.</i>	<i>Cyclotella sp.</i>	<i>Pinnularia sp.</i>	<i>Pleurosigma sp.</i>	<i>Asterionella sp.</i>	<i>Pinnularia sp.</i>	<i>Synedra sp.</i>	<i>Biddulphia sp.</i>	<i>Coscinodiscus sp.</i>	<i>Cyclotella sp.</i>		
			<i>Amphora sp.</i>	--	<i>Coscinodiscus sp.</i>	--	<i>Coscinodiscus sp.</i>	Cyanophyceae	<i>Gyrosigma sp.</i>	<i>Thalassiosira sp.</i>	<i>Pleurosigma sp.</i>	<i>Fragillaria sp.</i>	<i>Pleurosigma sp.</i>	<i>Tabellaria sp.</i>		
			Green algae	--	Green algae	--	<i>Cymbella sp.</i>	<i>Oscillatoria sp.</i>	Green Algae	Green Algae	<i>Navicula sp.</i>	<i>Skeletonema sp.</i>	<i>Thalassiosira sp.</i>	Cyanophyceae		
			<i>Pediastrum sp.</i>	--	<i>Pediastrum sp.</i>	--	Green Algae	--	<i>Pandorina sp.</i>	<i>Pandorina sp.</i>	<i>Thalassiosira sp.</i>	<i>Pandorina sp.</i>	<i>Pinnularia sp.</i>	<i>Oscillatoria sp.</i>		
					<i>Cynophyceae</i>		Ankistrodesmus sp.		<i>Spirogyra sp.</i>	<i>Pediastrum sp.</i>	Green Algae	Desmids	Green Algae	<i>Nostoc sp.</i>		
					<i>Oscillatoria sp.</i>		<i>Pediastrum sp.</i>			<i>Desmids</i>	<i>Volvox sp.</i>	<i>Chlorella sp.</i>		<i>Chlorella sp.</i>		Green Algae
									<i>Cosmarium sp.</i>		<i>Pandorina sp.</i>		<i>Pandorina sp.</i>	<i>Chlorella sp.</i>		
											Cyanophyceae		<i>Ulothrix sp.</i>			
											<i>Oscillatoria sp.</i>		Desmids			
										<i>Closterium sp.</i>						
C	Zooplanktons															
19.1	Abundance (Population)	no/m ²	320	220	310	130	240	90	210	70	167	50	280	40	APHA (22 nd Edi) 10200-G	



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Lab Manager (Q)

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19.2	Name of Group Number and name of group species of each group	--	<i>Copepods</i>	<i>Bivalves</i>	<i>Copepods</i>	<i>Bivalves</i>	Gastropods	Polychaete Worms	Gastropods	Cyclops	<i>Gastropods</i>	<i>Molluscs</i>	Copepods	Copepods	APHA (22 nd Edi) 10200-G
			<i>Gastropods</i>	<i>Copepods</i>	<i>Gastropods</i>	<i>Copepods</i>	Copepods	Bivalves	Copepods	Krill	<i>Bivalves</i>	<i>Platelmintes</i>	Krill	Gastropods	
			<i>Polychaetes</i>	--	<i>Polychaete worms</i>	<i>Molluscs</i>	Mysids	Molluscs	Decapods	Ostracods	<i>Copepods</i>	<i>Ostracods</i>	Decapods	--	
			<i>Fish larvae</i>	--	<i>Decapods</i>	--	Ostracods	--	Polychaete Worms	<i>Copepods</i>	<i>Cyclops</i>	--	Crustaceans	--	
			--	--	--	--	Krill	--	Cyclops & Ctenophores	--	<i>Polychaete Worms</i>	--	Ostracods	--	
19.3	Total Biomass	ml/100 m ³	22	11	69	19	86	21	66	19	48	12	56	5	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters														
20.1	Total Bacterial Count	CFU/ml	2331	1895	2077	1981	2100	1850	2130	1620	2210	1870	1760	1580	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)92 21-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi. 2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



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Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF SEDIMENT ANALYSIS [M7 EAST PORT N 22°47'120" E 069°47'110"]

SR. NO.	TEST PARAMETERS	UNIT	April 2015 SEDIMENT	May 2015 SEDIMENT	June 2015 SEDIMENT	July 2015 SEDIMENT	August 2015 SEDIMENT	September 2015 SEDIMENT	Test Method
1	Organic Matter	%	0.64	0.44	0.52	0.5	0.48	0.554	FCO:2007
2	Phosphorus as P	mg/kg	90	156	182	110	144	145	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	Heavy Metals								
5.1	Aluminum as Al	%	5.4	5.8	5.24	5.86	5.36	5.71	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	128	112	129	142	136	137	AAS 3111B
5.3	Manganese as Mn	mg/kg	840	810	936	1020	960	919	AAS APHA 3111 B
5.4	Iron as Fe	%	2.6	2.5	2.8	2.92	2.74	2.25	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	28	41.6	32.4	36.4	38.7	34.35	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	48	40	48.6	50.1	44.24	44.36	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	156	162	193	162	186	181	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	2.7	2.5	1.96	1.22	1.38	1.07	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	Benthic Organisms								
6.1	Macrobenthos	--	Crabs Snails Crustaceans	Bivalves Snails Crustaceans	Chaetognathes Decapods Bivalves Echinoderms	Echinoderms Decapods Bivalves Crabs Turbellaria	Echinoderms Bivalves Crab Isopods	Polychaete worms Echinoderms Isopods Decapods	APHA (22 nd Edi) 10500-C
6.2	MeioBenthos	--	copepods Nematodes	Nematodes Copepods Ostracods	Ostracods Hydrozoa	Ostracods Foraminiferans Hydrozoa	Foraminiferans Copepods	Nematodes Copepods	APHA (22 nd Edi) 10500-C
2	Population	no/m ²	251	314	411	357	397	377	APHA (22 nd Edi) 10500-C



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

RESULTS OF MARINE WATER [M8 RIGHT SIDE OF BOCHA CREEK N 22°45'987" E 069°43'119"]

S R. N O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		July 2015		August 2015		September 2015		Test Method
			SURFA CE	BOTT OM	SURFAC E	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.9	8.03	7.95	8.05	7.9	8.01	7.85	7.98	7.82	8.1	8.04	8	IS3025(P11)83R e.02
2	Temperature	°C	30	31	30	30	28	29	29	30	29	30	28	29	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	16	22	18	20	12	14	18	22	14	16	16	20	IS3025(P17)84R e.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.8	4.6	6	4.8	5.2	4.6	5.4	4.8	5.6	4.6	5.4	4.6	IS3025(P38)89R e.99
6	Salinity	ppt	45.9	46.1	43.9	44.2	42.8	43.4	43.6	44.4	42.6	43.2	38.8	39.6	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22 nd Edi)55 20D
8	Nitrate as NO ₃	mg/L	0.42	0.5	0.52	0.6	0.44	0.68	0.48	0.66	0.46	0.58	0.325	0.399	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.48	0.62	0.036	0.054	0.021	0.027	0.018	0.028	0.024	0.036	0.044	0.019	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.64	0.73	0.81	0.96	0.58	0.62	0.42	0.52	0.34	0.42	0.554	0.591	IS3025(P34)88Cl a.2.3
11	Phosphates as PO ₄	mg/L	0.038	0.062	BDL*	BDL*	0.12	0.16	0.14	0.18	0.14	0.16	0.495	0.585	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	2.8	5.2	1.36	1.61	1.04	1.32	0.92	1.2	0.84	0.99	0.923	1.009	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	BDL*	BDL*	BDL*	BDL*	2.1	BDL*	1.8	BDL*	0.8	BDL*	1.2	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	54690	54980	52440	52980	53600	54100	51920	52890	53548	53990	42750	43320	IS3025(P16)84R e.02
15	COD	mg/L	16	26	24	32	24	26	20	24	18	22	24	28	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.72	0.52	0.6	0.43	0.72	0.32	0.68	0.44	0.7	0.58	0.54	0.62	SOP – PLPL - 07



H. T. Shah
Lab Manager




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Lab Manager (Q)

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A	Flora and Fauna														
17	Primary productivity	mgC/L /day	2.92	1.06	2.475	0.99	2.925	0.45	2.47	1.125	1.463	0.337	1.463	0.113	APHA (22nd Edi) 10200-J
B	Phytoplankton														
18.1	Chlorophyll	mg/m ³	3.8	2.11	2.78	0.83	3.151	0.774	1.92	0.748	1.38	0.427	1.922	0.427	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	BDL*	BDL*	1.75	BDL*	1.805	0.395	1.98	0.742	1.42	0.021	1.479	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	308	220	306	143	358	95	294	75	189	28	202	33	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Diatom	Diatom	Diatom	Diatom	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Biddulphia sp.</i>	<i>Melosira sp.</i>	<i>Biddulphia sp.</i>	<i>Biddulphia sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Nitzschia sp.</i>	<i>Fragillaria sp.</i>	<i>Coscinodiscus sp.</i>	<i>Coscinodiscus sp.</i>	<i>Asterionella sp.</i>	<i>Fragillaria sp.</i>	
			<i>Pleurosigma sp.</i>	<i>Biddulphia sp.</i>	<i>Pleurosigma sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Biddulphia sp.</i>	<i>Synedra sp.</i>	<i>Synedra sp.</i>	<i>Pinnularia sp.</i>	<i>Pinnularia sp.</i>	<i>Fragillaria sp.</i>	<i>Navicula sp.</i>	
			<i>Nitzschia sp.</i>	<i>Nitzschia sp.</i>	<i>Thalassionema sp.</i>	<i>Pleurosigma sp.</i>	<i>Rhizosolenia sp.</i>	<i>Thalassiosira sp.</i>	<i>Rhizosolenia sp.</i>	<i>Cyclotella sp.</i>	<i>Gyrodinium sp.</i>	<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Nitzschia sp.</i>	
			<i>Thalassiosira sp.</i>	--	<i>Fragillaria sp.</i>	<i>Thalassionema sp.</i>	<i>Asterionella sp.</i>	Green Algae	<i>Coscinodiscus sp.</i>	<i>Cheatoceous sp.</i>	<i>Thalassiosira sp.</i>	<i>Synedra sp.</i>	<i>Synedra sp.</i>	<i>Gyrodinium sp.</i>	
			<i>Fragillaria sp.</i>	--	Green algae	--	<i>Synedra sp.</i>	<i>Chlorella sp.</i>	<i>Biddulphia sp.</i>	Green Algae	<i>Navicula sp.</i>	<i>Skeletonema sp.</i>	<i>Coscinodiscus sp.</i>	Cyanophyceae	
			<i>Melosira sp.</i>	--	<i>Chlorella sp.</i>	--	<i>Cyclotella sp.</i>	<i>Scenedesmus sp.</i>	<i>Cocconeis sp.</i>	<i>Chlorella sp.</i>	Green Algae	Desmids	<i>Cymbella sp.</i>	<i>Oscillatoria sp.</i>	
			--	--	--	--	<i>Gyrodinium sp.</i>	--	<i>Skeletonema sp.</i>	<i>Hydrodictyon sp.</i>	<i>Chlorella sp.</i>	<i>Cosmarium sp.</i>	<i>Pleurosigma sp.</i>	Desmids	
			--	--	--	--	Cyanophyceae	--	Green Algae	<i>Spirogyra sp.</i>	<i>Pandorina sp.</i>	--	Cyanophyceae	<i>Closterium sp.</i>	
			--	--	--	--	<i>Oscillatoria sp.</i>	--	<i>Chlorella sp.</i>	--	Cyanophyceae	--	<i>Oscillatoria sp.</i>	--	
			--	--	--	--	<i>Spirulina sp.</i>	--	<i>Volvox sp.</i>	--	<i>Oscillatoria sp.</i>	--	<i>Nostoc sp.</i>	--	
			--	--	--	--	Green Algae	--	<i>Pandorina sp.</i>	--	--	--	Green Algae	--	
			--	--	--	--	<i>Chlorella sp.</i>	--	<i>Pediastrum sp.</i>	--	--	--	<i>Chlorella sp.</i>	--	
			--	--	--	--	<i>Volvox sp.</i>	--	--	--	--	--	<i>Pediastrum sp.</i>	--	
C	Zooplanktons														



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19.1	Abundance (Population)	no/m ²	298	198	370	120	210	80	240	60	217	83	240	80	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	<i>Echinoderms</i>	<i>Polychaete</i>	<i>Echinoderms</i>	<i>Polychaete worms</i>	Bivalves	Polychaete Worms	Decapods	Polychaete	Copepods	Molluscs	Nematodes	Polychaete worms	APHA (22 nd Edi) 10200-G
			<i>Copepods</i>	<i>Bivalves</i>	<i>Copepods</i>	<i>Bivalves</i>	Nematodes	Copepods	Copepods	Lamellibranches	Decapods	Iso-pods	Copepods	Iso-pods	
			<i>Isopods</i>	--	<i>Isopods</i>	<i>Gastropods</i>	Gastropods	--	Ostracods	Gastropods	Polychaete Worms	Decapods	Krill	--	
			<i>Gastropods</i>	--	<i>Gastropods</i>	--	Mysids	--	Krill	Crustaceans	Gastropods	--	Molluscs	--	
			--	--	--	--	--	--	Ctenophores	--	Cyclops	--	--	--	
			--	--	--	--	--	--	Fish egg	--	--	--	--	--	
19.3	Total Biomass	ml/100 m ³	18	12	78	26	44	11	81	14	74	15	61	9	APHA (22 nd Edi) 10200-G
D Microbiological Parameters															
20.1	Total Bacterial Count	CFU/ml	1531	1677	1610	1740	1700	1880	1880	1522	1800	1390	1470	1110	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF SEDIMENT ANALYSIS [M8 RIGHT SIDE OF BOCHA CREEK – N 22°45'987" E 069°43'119"]

SR. NO.	TEST PARAMETERS	UNIT	April 2015 SEDIMENT	May 2015 SEDIMENT	June 2015 SEDIMENT	July 2015 SEDIMENT	August 2015 SEDIMENT	September 2015 SEDIMENT	Test Method
1	Organic Matter	%	0.59	0.44	0.64	0.4	0.62	0.441	FCO:2007
2	Phosphorus as P	mg/kg	134	160	240	190	210	187	APHA(22 nd Eti) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	Heavy Metals								
5.1	Aluminum as Al	%	5.4	5.1	4.9	5.26	5	5.59	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	84	92	104	80	98	99.98	AAS 3111B
5.3	Manganese as Mn	mg/kg	940	784	810	684	720	879	AAS APHA 3111 B
5.4	Iron as Fe	%	2.6	2.3	2.32	2.48	2.52	2.12	AAS APHA(22 nd Eti)3111 B
5.5	Nickel as Ni	mg/kg	48	33	56	42	52	35.9	AAS APHA(22 nd Eti)3111 B
5.6	Copper as Cu	mg/kg	56	48	52	50	58	45.9	AAS APHA(22 nd Eti)3111 B
5.7	Zinc as Zn	mg/kg	172	156	172	150	166	1.62	AAS APHA(22 nd Eti)3111 B
5.8	Lead as Pb	mg/kg	2.9	2.1	1.7	2	1.96	1.88	AAS APHA(22 nd Eti)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	Benthic Organisms								
6.1	Macrobenthos	--	Snails Amphipods Polychaete worms Crabs	Bivalves Mysids Chaetognathes	Polychaete Worms Crabs Decapods Isopods	Polychaete Worms Bivalves Decapods Echinoderms	Polychaete Worms Bivalves Echinoderms Crabds Isopods	Polychaete worms Isopods Decapods Prawn	APHA (22 nd Edi) 10500-C
6.2	MeioBenthos	--	Copepods Nematodes	Nematodes Copepods	Nematodes Foraminiferans Ciliates	Nematodes Foraminiferans Copepods	Nematodes Foraminiferans	Nematodes Foraminiferans	APHA (22 nd Edi) 10500-C
2	Population	no/m ²	503	481	485	433	337	433	APHA (22 nd Edi) 10500-C



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF MARINE WATER [M11 MPT T1 JETTY N 22°42'278" E 069°43'450"]

S. R. N. O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		July 2015		August 2015		September 2015		Test Method
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.05	8.13	8.11	8.24	8.15	8.22	8.1	8.28	8.05	8.18	8	8.09	IS3025(P11)83Re.02
2	Temperature	°C	31	31	29	30	30	30	29	30	28	29	28	29	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	12	22	16	20	12	16	18	22	20	26	16	20	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL *	BDL *	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.8	6	5.2	5.4	5	5.6	4.8	5.8	5	5.4	4.8	IS3025(P38)89Re.99
6	Salinity	ppt	42.7	44.1	42.4	42.9	40.6	41.1	43.8	44.6	41.2	42.5	39.6	40.2	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	0.6	BDL *	BDL*	BDL*	0.2	BDL*	0.4	BDL*	APHA(22 nd Edi)5 520D
8	Nitrate as NO ₃	mg/L	0.81	0.99	0.66	0.94	0.84	0.88	0.78	0.96	0.58	0.72	0.34	0.414	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.081	0.086	0.041	0.056	0.024	0.042	0.038	0.068	0.03	0.054	0.026	0.011	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.4	0.56	0.56	0.7	0.72	0.86	0.66	0.7	0.5	0.62	0.221	0.351	IS3025(P34)88C la.2.3
11	Phosphates as PO ₄	mg/L	0.056	0.077	0.096	0.11	0.11	0.13	0.092	0.1	0.088	0.096	0.495	0.63	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	2.1	3.8	1.26	1.69	1.58	1.78	1.478	1.728	1.2	1.394	0.587	0.776	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	BDL*	BDL*	BDL*	BDL*	12.4	BDL*	8.6	BDL*	6.4	BDL*	6.2	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	52105	52640	51610	51740	50680	51120	53200	53880	51240	51630	46326	47880	IS3025(P16)84Re.02
15	COD	mg/L	24	28	18	24	26	30	20	28	16	22	9	19	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.98	0.38	0.72	0.48	0.54	0.32	0.64	0.4	0.48	0.66	0.55	0.43	SOP – PLPL - 07
A Flora and Fauna															
17	Primary productivity	mgC/L /day	2.1	0.8	2.02	0.9	2.925	0.225	2.25	0.45	1.8	0.563	1.125	0.338	APHA (22 nd Edi) 10200-J



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B	Phytoplankton														
18.1	Chlorophyll	mg/m ³	5.2	3.57	2.46	2.67	3.284	0.374	2.1	0.267	1.97	0.107	1.44	0.32	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	BDL*	0.12	BDL*	BDL *	2.205	0.246	2.31	0.155	1.762	0.689	1.511	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	270	205	312	169	364	87	278	69	220	55	196	42	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Diatom	Diatom	Diatom	Diatom	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Gyrosigma</i> sp.	<i>Fragillaria</i> sp.	<i>Gyrosigma</i> sp.	<i>Fragillaria</i> sp.	<i>Rhizosolenia</i> sp.	<i>Biddulphia</i> sp.	<i>Fragillaria</i> sp.	<i>Nitzschia</i> sp.	<i>Asterionella</i> sp.	<i>Fragillaria</i> sp.	<i>Rhizosolenia</i> sp.	<i>Fragillaria</i> sp.	
			<i>Navicula</i> sp.	<i>Nitzschia</i> sp.	<i>Thalassiosira</i> sp.	<i>Gyrosigma</i> sp.	<i>Skeletonema</i> sp.	<i>Pinnularia</i> sp.	<i>Rhizosolenia</i> sp.	<i>Melosira</i> sp.	<i>Nitzschia</i> sp.	<i>Nitzschia</i> sp.	<i>Nitzschia</i> sp.	<i>Nitzschia</i> sp.	
			<i>Thalassiosira</i> sp.	<i>Melosira</i> sp.	<i>Synedra</i> sp.	<i>Thalassiosira</i> sp.	<i>Synedra</i> sp.	<i>Pleurosigma</i> sp.	<i>Nitzschia</i> sp.	<i>Pleurosigma</i> sp.	<i>Navicula</i> sp.	<i>Navicula</i> sp.	<i>Navicula</i> sp.	<i>Navicula</i> sp.	
			<i>Synedra</i> sp.	--	Green algae	--	<i>Navicula</i> sp.	Green Algae	<i>Synedra</i> sp.	<i>Cymbella</i> sp.	<i>Coscinodiscus</i> sp.	<i>Gyrosigma</i> sp.	<i>Coscinodiscus</i> sp.	<i>Gyrosigma</i> sp.	
			Green algae	--	<i>Spirogyra</i> sp.	--	<i>Cyanophyceae</i> <i>Navicula</i> sp. <i>Spirulina</i> sp. <i>Lyngbya</i> sp.	<i>Volvox</i> sp.	<i>Pleurosigma</i> sp.	Green Algae	<i>Pleurosigma</i> sp.	Cyanophyceae	<i>Pleurosigma</i> sp.	Green Algae	
			<i>Spirogyra</i> sp.	--	<i>Chlorella</i> sp.	--	Green Algae	--	Green Algae	<i>Chlorella</i> sp.	<i>Fragillaria</i> sp.	<i>Oscillatoria</i> sp.	<i>Thalassiosira</i> sp.	<i>Chlorella</i> sp.	
			--	--	<i>Ankistrodesmus</i> sp.	--	Microcystis sp.	--	Chlorella sp.	<i>Pandorina</i> sp.	<i>Pinnularia</i> sp.	<i>Spirulina</i> sp.	Cyanophyceae	<i>Pandorina</i> sp.	
			--	--	--	--	Chlorella sp.	--	<i>Pandorina</i> sp.	--	Green Algae	--	<i>Oscillatoria</i> sp.	--	
			--	--	--	--	<i>Pandorina</i> sp.	--	Ulothrix sp.	--	<i>Ankistrodesmus</i> sp.	--	<i>Nostoc</i> sp.	--	
			--	--	--	--	--	--	Hydrodictyon sp.	--	<i>Chlorella</i> sp.	--	Green Algae	--	
			--	--	--	--	--	--	--	--	<i>Volvox</i> sp.	--	<i>Chlorella</i> sp.	--	
			--	--	--	--	--	--	--	--	<i>Hydrodictyon</i> sp.	--	<i>Pediastrum</i> sp.	--	
C	Zooplanktons														
19	Abundance	no/m ²	400	300	350	260	270	120	190	50	210	60	325	75	APHA (22 nd Edi)


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Lab Manager (Q)

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.1	(Population)														10200-G
19	Name of Group Number and name of group species of each group	--	<i>Copepod s</i>	<i>Decapod larvae</i>	<i>Copepods</i>	<i>Decapods</i>	Nematode s	Foraminif erans	Polychaet e Worms	Foraminif erans	Copepods	Copepods	Polychaet e worms	Copepods	APHA (22 nd Edi) 10200-G
.2			<i>Polychae tes</i>	<i>Polychae tes</i>	<i>Polychaet eworms</i>	<i>Polychaet eworms</i>	--	Polychaet e Worms	Decapods	Nematode s	Molluscan s	Ostracods	Krill	Nematode s	
			<i>Gastropo ds</i>	<i>Ostracod s</i>	<i>Gastropod s</i>	<i>Ostracods</i>	--	--	Cyclops	Lamellibra nches	Polychaet e Worms	Crustacea ns	Isopods	--	
			<i>Foramini ferans</i>	--	<i>Decapods</i>	--	--	--	Chaetogn athes	--	Knill	--	Gastropod s	--	
			<i>Ctenoph ores</i>	--	<i>Mysids</i>	--	--	--	Molluscan s	--	Gastropod s	--	--	--	
19	Total Biomass	ml/100 m ³	30	18	89	22	48	20	37	12	82	14	72	11	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters														
20	Total Bacterial Count	CFU/ml	1927	2177	2130	2410	2250	2500	1925	1350	1850	1430	1470	1180	IS 5402:2002
20	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)9 221-D
20	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Ed i.2.4(2003-05)
20	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF MARINE WATER [M12 SPM N 22°40'938" E 069°39'191"]

SR · N O.	TEST PARAMETERS	UNIT	April 2015		May 2015		June 2015		August 2015		September 2015		Test Method
			SURFAC E	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.99	8.11	8.06	8.17	8.1	8.13	8.14	8.2	7.99	8.05	IS3025(P11)83Re.0 2
2	Temperature	°C	30	31	29	30	29	30	29	30	29	30	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	16	21	14	18	22	28	18	26	20	26	IS3025(P17)84Re.0 2
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03Edit ion2.1
5	Dissolved Oxygen	mg/L	5.4	4.6	5.6	4.4	5.4	4.6	5.6	4.8	5.8	4.6	IS3025(P38)89Re.9 9
6	Salinity	ppt	41.4	41.8	41.6	42	39.8	40.4	40.2	41.8	39.6	40.1	APHA (22 nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL *	BDL *	BDL*	BDL*	BDL*	BDL*	APHA(22 nd Edi)5520 D
8	Nitrate as NO ₃	mg/L	0.56	0.69	0.36	0.51	0.52	0.58	0.48	0.54	0.458	0.888	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.081	0.102	0.072	0.096	0.048	0.072	0.12	0.18	0.037	0.063	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.56	0.62	0.69	0.72	0.84	0.63	0.74	0.82	0.887	1.06	IS3025(P34)88Cla.2 .3
11	Phosphates as PO ₄	mg/L	0.094	0.098	0.14	0.16	0.18	0.2	0.16	0.18	0.585	0.675	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	3.8	4.1	1.12	1.32	1.42	1.3	1.34	1.54	1.382	2.011	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	4	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.56	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	49608	51210	48710	49810	47480	48120	48020	51308	47310	47738	IS3025(P16)84Re.0 2
15	COD	mg/L	18	24	24	31	18	20	16	20	24	28	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.76	0.42	0.46	0.3	0.49	0.24	0.68	0.4	0.52	0.32	SOP – PLPL - 07
A	Flora and Fauna												
17	Primary productivity	mgC/L/ day	3.1	1.2	1.35	0.45	2.475	1.013	1.91	0.675	1.575	0.225	APHA (22 nd Edi) 10200-J
B	Phytoplankton												
18.	Chlorophyll	mg/m ³	3.39	3.81	1.28	0.67	2.67	0.481	1.7	0.427	1.362	0.187	APHA (22 nd Edi)



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Lab Manager




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Lab Manager (Q)

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1													10200-H
18.2	Phaeophytin	mg/m ³	BDL*	BDL*	1.3	1.91	BDL*	2.099	1.65	1.23	0.844	1.77	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	225	182	179	93	321	40	245	47	225	31	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Diatom	Diatom	Diatom	Diatom	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Coscinodiscus sp.</i>	<i>Coscinodiscus sp.</i>	<i>Coscinodiscus sp.</i>	<i>Coscinodiscus sp.</i>	<i>Nitzschia sp.</i>	<i>Cymbella sp.</i>	<i>Gyro sigma sp.</i>	<i>Amphora sp.</i>	<i>Rhizosolenia sp.</i>	<i>Thalassione ma sp.</i>	
			<i>Melosira sp.</i>	<i>Asterionella sp.</i>	<i>Nitzschia sp.</i>	<i>Asterionella sp.</i>	<i>Gomphonema sp.</i>	<i>Nitzschia sp.</i>	<i>Pinnularia sp.</i>	<i>Coscinodiscus sp.</i>	<i>Nitzschia sp.</i>	<i>Fragillaria sp.</i>	
			<i>Nitzschia sp.</i>	<i>Navicula sp.</i>	<i>Synedra sp.</i>	<i>Navicula sp.</i>	<i>Pleurosigma sp.</i>	<i>Synedra sp.</i>	<i>Synedra sp.</i>	<i>Navicula sp.</i>	<i>Navicula sp.</i>	<i>Synedra sp.</i>	
			<i>Synedra sp.</i>	Cyanophyceae	<i>Thalassione ma sp.</i>	<i>Nitzschia sp.</i>	<i>Rhizosolenia sp.</i>	Green Algae	<i>Nitzschia sp.</i>	<i>Synedra sp.</i>	<i>Thalassione ma sp.</i>	<i>Pleurosigma sp.</i>	
			<i>Thalassiosira sp.</i>	<i>Oscillatoria sp.</i>	<i>Biddulphia sp.</i>	--	Cyanophyceae	<i>Chlorella sp.</i>	<i>Thalassiosira sp.</i>	<i>Fragillaria sp.</i>	<i>Coscinodiscus sp.</i>	<i>Asterionella sp.</i>	
			<i>Biddulphia sp.</i>	--	<i>Cymbella</i>	--	<i>Oscillatoria sp.</i>	--	<i>Pleurosigma sp.</i>	Green Algae	<i>Fragillaria sp.</i>	Cyanophyceae	
			--	--	--	--	<i>Desmids</i>	--	<i>Cyanophyceae</i>	<i>Chlorella sp.</i>	Cyanophyceae	<i>Oscillatoria sp.</i>	
			--	--	--	--	<i>Cosmarium sp.</i>	--	<i>Oscillatoria sp.</i>	<i>Pandorina sp.</i>	<i>Oscillatoria sp.</i>	<i>Desmids</i>	
			--	--	--	--	<i>Closterium sp.</i>	--	<i>Spirulina sp.</i>	<i>Pediastrum sp.</i>	<i>Nostoc sp.</i>	<i>Closterium sp.</i>	
			--	--	--	--	--	--	--	Green Algae	Green Algae	--	
			--	--	--	--	--	--	--	<i>Chlorella sp.</i>	<i>Chlorella sp.</i>	--	
			--	--	--	--	--	--	--	<i>Volvox sp.</i>	<i>Volvox sp.</i>	--	
C	Zooplanktons												
19.1	Abundance (Population)	no/m ²	620	460	480	280	210	130	250	100	280	150	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	<i>Polychaetes</i>	<i>Bivalves</i>	<i>Polychaete worms</i>	<i>Bivalves</i>	Nematodes	Polychaete Worms	Copepods	Copepods	Copepods	Isopods	APHA (22 nd Edi) 10200-G
			<i>Chaetognaths</i>	<i>Snails</i>	<i>Chaetognaths</i>	<i>Isopods</i>	Gastropods	Bryozoans	Krill	Polychaete Worms	Decapods	Hydrozoans	
			<i>Gastropods</i>	<i>Molluscs</i>	<i>Gastropods</i>	<i>Hydrozoans</i>	Muds Skipper	Snail	Gastropods	Crustaceans	Nematodes	Nematodes	
			<i>Bivalves</i>	<i>Hydrozoans</i>	<i>Bivalves</i>	--	Bivalves	Hydrozoans	Decapods	--	Isopods	--	
			--	<i>Isopods</i>	<i>Decapods</i>	--	--	--	Polychaete Worms	--	Krill	--	


H. T. Shah
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									& Ostracods				
19.3	Total Biomass	ml/100 m ³	27	12	36	17	102	28	89	16	75	9	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters												
20.1	Total Bacterial Count	CFU/ml	2009	1927	2800	1825	2560	2240	1710	1280	1590	1320	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22 nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)



H. T. Shah
Lab Manager




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Lab Manager (Q)

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RESULTS OF ETP WATER OUTLET

SR. NO.	PARAMETERS	UNIT	Liquid Terminal ETP Outlet						TEST METHOD
			April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	
1	Colour	Co-pt	50	40	20	30	30	20	IS3025(P4)83Re.02
2	pH	--	6.7	7.1	6.56	6.92	7.08	7.17	IS3025(P11)83Re.02
3	Temperature	°C	32	31	30	30	30	30	IS3025(P9)84Re.02
4	Total Suspended Solids	mg/L	40	38	20	28	24	26	IS3025(P17)84Re.02
5	Total Dissolved Solids	mg/L	1890	1890	1562	1909	1960	2024	IS3025(P16)84Re.02
6	COD	mg/L	84	92	98	82	92	96	APHA(22 nd Edition) 5520-D Open Reflux
7	BOD (3 Days @ 27 °C)	mg/L	30	26	28	18	20	24	IS 3025 (P44)1993Re.03Edition2.1
8	Chloride as Cl	mg/L	589	587	560	390	540	584	IS3025(P32)88Re.99
9	Oil & Grease	mg/L	0.8	0.4	BDL*	0.6	0.2	1	APHA(22 nd Edition)5520D
10	Sulphate as SO ₄	mg/L	174	160	150	220	190	167	APHA(22 nd Edition)4500 SO ₄ E
11	Ammonical Nitrogen as NH ₃	mg/L	2.1	3.1	4.4	5.6	3	1.75	IS3025(P34)88Cla.2.3
12	% Sodium as Na	%	42	45.56	46.19	48.44	44.8	49.26	AAS APHA(22 nd Edition) 3500 NA B/ Flame Photometer
13	Nickel as Ni	mg/L	0.014	BDL*	BDL*	BDL*	BDL*	0.018	AAS APHA(22 nd Edition)3111 B
14	Phenolic Compound	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS3025(P43)92Re.03
15	SAR	--	4.6	6.02	5.4	5.8	BDL*	8.88	By Calculation
16	Total Chromium as Cr ⁺³	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS 3111B
17	Hexavalent Chromium as Cr ⁺⁶	mg/L	BDL*	BDL*	0.018	BDL*	BDL*	BDL*	APHA(22 nd Edition)3500Cr B Colorimetric method
18	Copper as Cu	mg/L	0.018	0.011	BDL*	0.012	0.01	0.01	AAS APHA(22 nd Edition)3111 B
19	Lead as Pb	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA(22 nd Edition)3111 B
20	Sulphide as S	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22 nd Edition) 4500-S
21	Mercury as Hg	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
22	Zinc as Zn	mg/L	0.066	0.031	0.026	0.042	0.03	0.024	AAS APHA(22 nd Edition)3111 B
23	Cadmium as Cd	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA(22 nd Edition)3111 B
24	Cyanide as CN	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22 nd Edition)4500CN E
25	Arsenic as As	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA 3114 B
26	Fluoride as F	mg/L	0.72	0.8	0.62	0.74	0.66	BDL*	APHA(22 nd Edition) 4500 F D SPANDS
27	Insecticides/Pesticides	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	GC MS

*Below detection limit



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULT OF AMBIENT AIR QUALITY MONITORING

Location & Parameter	Unit	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	Test Method
T1 TERMINAL								
Respirable Particulate Matter (PM ₁₀)	µg/m ³	75.26	72.81	76.16	79.38	82.88	75.96	IS:5182(P23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	41.80	36.60	41.73	40.87	40.29	38.96	Gravimetric- CPCB - Method (Vol.I,May-2011)
Sulphur Dioxide as SO ₂	µg/m ³	14.27	15.20	15.32	15.45	14.66	11.62	IS:5182(PII):Improved West and Gaeke
Oxides of Nitrogen as NO ₂	µg/m ³	32.09	33.41	34.85	33.22	33.14	30.58	IS:5182(PVI): Jacob & Hochheiser modified (NaOH-NaAsO ₂) Method
Carbon Monoxide as CO	mg/m ³	0.45	0.51	0.55	0.53	0.51	0.44	NDIR Digital Gas Analyzer
Hydrocarbon as CH ₄	mg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	SOP: HC: GC/GCMS/Gas analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 5182 (Part XI):2006/CPCB Method
NEAR FIRE STATION								
Respirable Particulate Matter (PM ₁₀)	µg/m ³	67.94	70.59	75.37	86.26	85.74	80.70	IS:5182(P23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	39.10	35.73	40.87	46.72	44.57	41.56	Gravimetric- CPCB - Method (Vol.I,May-2011)
Sulphur Dioxide as SO ₂	µg/m ³	17.40	18.77	18.84	19.35	17.37	15.52	IS:5182(PII):Improved West and Gaeke
Oxides of Nitrogen as NO ₂	µg/m ³	31.13	34.23	34.21	34.67	34.31	32.53	IS:5182(PVI): Jacob & Hochheiser modified (NaOH-NaAsO ₂) Method
Carbon Monoxide as CO	mg/m ³	0.27	0.30	0.32	0.35	0.32	0.33	NDIR Digital Gas Analyzer
Hydrocarbon as CH ₄	mg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	SOP: HC: GC/GCMS/Gas analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 5182 (Part XI):2006/CPCB Method
PUB /ADANI HOUSE								
Respirable Particulate Matter (PM ₁₀)	µg/m ³	67.29	68.65	62.39	70.67	68.94	67.06	IS:5182(P23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	39.34	36.37	29.82	33.80	31.35	30.89	Gravimetric- CPCB - Method (Vol.I,May-2011)
Sulphur Dioxide as SO ₂	µg/m ³	14.54	15.30	17.00	16.95	16.68	12.08	IS:5182(PII):Improved West and Gaeke
Oxides of Nitrogen as NO ₂	µg/m ³	29.05	31.77	31.45	29.89	29.83	28.03	IS:5182(PVI): Jacob & Hochheiser modified (NaOH-NaAsO ₂) Method
Carbon Monoxide as CO	mg/m ³	0.37	0.44	0.42	0.40	0.40	0.42	NDIR Digital Gas Analyzer
Hydrocarbon as CH ₄	mg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	SOP: HC: GC/GCMS/Gas analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 5182 (Part XI):2006/CPCB Method



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULT OF AMBIENT AIR QUALITY MONITORING

Location & Parameter	Unit	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	Test Method
AIR STRIP								
Respirable Particulate Matter (PM ₁₀)	µg/m ³	71.09	71.08	65.95	69.93	70.38	69.70	IS:5182(P23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	33.14	35.41	30.67	31.55	30.69	29.85	Gravimetric- CPCB - Method (Vol.I,May-2011)
Sulphur Dioxide as SO ₂	µg/m ³	13.19	14.08	12.28	12.21	13.98	11.70	IS:5182(PII):Improved West and Gaeke
Oxides of Nitrogen as NO ₂	µg/m ³	29.83	31.34	28.26	28.06	29.70	27.84	IS:5182(PVI): Jacob & Hochheiser modified (NaOH-NaAsO ₂) Method
Carbon Monoxide as CO	mg/m ³	0.29	0.24	0.24	0.26	0.27	0.26	NDIR Digital Gas Analyzer
Hydrocarbon as CH ₄	mg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	SOP: HC: GC/GCMS/Gas analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS 5182 (Part XI):2006/CPCB Method
NEAR SHANTIVAN COLONY'S STP								
Respirable Particulate Matter (PM ₁₀)	µg/m ³	62.36	63.99	58.03	64.40	62.50	67.60	IS:5182(P23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	33.13	32.74	28.50	32.12	31.60	32.27	Gravimetric- CPCB - Method (Vol.I,May-2011)
Sulphur Dioxide as SO ₂	µg/m ³	12.61	13.56	13.09	16.63	14.03	14.31	IS:5182(PII):Improved West and Gaeke
Oxides of Nitrogen as NO ₂	µg/m ³	28.60	26.92	29.13	29.87	28.02	29.29	IS:5182(PVI): Jacob & Hochheiser modified (NaOH-NaAsO ₂) Method

Note: Monthly average is calculated from result of 24 hourly & twice in a week monitoring.



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF NATIONAL AMBIENT AIR QUALITY MONITORING

WEST PORT		T1 TERMINAL	NEAR FIRE STATION	PUB /ADANI HOUSE	AIR STRIP	NEAR SHANTIVAN COLONY'S STP	METHOD OF MEASUREMENT
TEST PARAMETER	UNIT	08/04/2015	08/04/2015	08/04/2015	09/04/2015	07/04/2015	
Respirable Particulate Matter (PM ₁₀)	µg/m ³	92.92	78.82	55.50	73.11	57.50	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM 2.5)	µg/m ³	51.45	45.03	44.14	35.54	36.23	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)-particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.34	0.16	0.44	0.34	0.48	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	2.16	BDL*	BDL*	BDL*	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	46.54	28.44	34.53	44.73	25.52	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	15.34	19.70	16.70	10.68	12.52	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	41.36	30.20	36.41	24.54	26.48	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone as O ₃	µg/m ³	21.47	25.38	22.35	19.52	18.08	IS 5182 (PART IX) 1974 / CPCB Method (Vol.I,May-2011)
Hydrocarbon as CH ₄	ppm	BDL*	BDL*	BDL*	BDL*	BDL*	SOP: HC: GC/GCMS/Gas analyzer



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULTS OF NATIONAL AMBIENT AIR QUALITY MONITORING

WEST PORT		T1 TERMINAL	NEAR FIRE STATION	PUB /ADANI HOUSE	AIR STRIP	NEAR SHANTIVAN COLONY'S STP	METHOD OF MEASUREMENT
TEST PARAMETER	UNIT	17/07/2015	17/07/2015	17/07/2015	18/07/2015	16/07/2015	
Respirable Particulate Matter (PM10)	µg/m ³	86.63	79.63	54.89	67.47	62.63	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM 2.5)	µg/m ³	48.54	32.52	24.57	27.60	39.14	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)-particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.70	0.46	0.58	0.41	0.60	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	58.51	36.39	46.74	40.63	21.69	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	18.80	11.23	22.78	13.73	13.58	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	41.66	36.46	39.52	30.42	35.36	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone as O ₃	µg/m ³	24.50	28.39	26.58	21.72	21.48	IS 5182 (PART IX) 1974 / CPCB Method (Vol.I,May-2011)
Hydrocarbon as CH ₄	ppm	BDL*	BDL*	BDL*	BDL*	BDL*	SOP: HC: GC/GCMS/Gas analyzer



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

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RESULT OF STACK MONITORING

SR. NO.	TEST PARAMETERS	Unit	#Thermic Fluid Heater (Bitumen)	#Hot Water System-1 (Liquid Terminal)	#Hot Water System-2 (Liquid Terminal)	Test Method
April 2015						
1	Particulate Matter	mg/Nm ³	28.58	42.53	36.58	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	4.68	7.42	8.34	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	28.52	32.76	26.54	IS:11255 (Part-VII):2005
May 2015						
1	Particulate Matter	mg/Nm ³	41.62	35.58	28.45	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	6.64	8.65	5.36	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	31.33	34.74	29.05	IS:11255 (Part-VII):2005
June 2015						
1	Particulate Matter	mg/Nm ³	32.75	44.56	36.74	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	7.67	6.67	8.61	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	35.60	32.56	37.80	IS:11255 (Part-VII):2005
August 2015						
1	Particulate Matter	mg/Nm ³	--	26.80	30.61	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	--	8.74	6.28	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	--	38.56	35.70	IS:11255 (Part-VII):2005
September 2015						
1	Particulate Matter	mg/Nm ³	--	18.93	24.51	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	--	6.83	5.55	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	--	36.24	32.85	IS:11255 (Part-VII):2005

*Below detection limit

Results on 11 % O₂ Correction when Oxygen is greater than 11 %



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF DG STACK MONITORING

April 2015								
SR. NO.	TEST PARAMETERS	Unit	D.G. Set-1* (500 KVA)	D.G. Set-2* (500 KVA)	D.G. Set-3* (500 KVA)	D.G. Set-4* (500 KVA)	D.G. Set-5* (500 KVA)	Test Method
1	Particulate Matter	mg/Nm ³	24.58	32.59	29.84	21.53	36.57	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	5.86	7.85	4.34	6.74	7.5	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	24.4	26.38	34.04	30.54	32.23	IS:11255 (Part-VII):2005
July 2015								
SR. NO.	TEST PARAMETERS	Unit	D.G. Set-1* (500 KVA)	D.G. Set-2* (500 KVA)	D.G. Set-3* (500 KVA)	D.G. Set-4* (500 KVA)	D.G. Set-5* (500 KVA)	Test Method
1	Particulate Matter	mg/Nm ³	16.44	38.51	33.75	30.18	26.66	IS:11255 (Part-I):1985
2	Sulphur Dioxide	ppm	4.75	5.83	7.8	9.56	5.23	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	28.85	26.63	30.51	35.2	29.62	IS:11255 (Part-VII):2005

*DG sets are used as standby, so stack monitoring is done on quarterly basis.

Results on 11 % O₂ Correction when Oxygen is greater than 11 %



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

Recognised by MoEF, New Delhi Under Sec. 12 of Environmental (Protection) Act-1986

MINIMUM DETECTION LIMIT [MDL]

Water parameter(mg/L)		
Sr. No.	Test parameter	MDL
1	Total Suspended Solids	1
2	Oil & Grease	1
3	BOD	10
4	COD	5
6	Total Dissolved Solids	3
7	Sulphate	0.3
8	Ammonical Nitrogen	0.05
9	Nickel	0.01
10	Phenolic Compound	0.001
11	Fluoride	0.01
12	Copper	0.013
13	Sulphide	0.01
15	Cyanide	0.0001
16	Residual Chlorine	0.1
17	Boron	0.02
17	Insecticides/Pesticides	0.01
19	Nitrate Nitrogen	0.15
20	Phosphorous	0.15
21	Petroleum Hydrocarbon	0.01
22	Lead	0.005
23	Mercury	0.0005
24	Zinc	0.022
25	Cadmium	0.001
26	Arsenic	0.00015
Sediment parameter(mg/kg)		
1	Petroleum Hydrocarbon	0.2

Stack parameter		
Sr. No.	Test parameter	MDL
1	Particulate Matter (mg/Nm ³)	10
2	Sulphur Dioxide(ppm)	1.52
3	Oxides of Nitrogen (ppm)	2.65



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Lab Manager




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Lab Manager (Q)

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MINIMUM DETECTION LIMIT [MDL]

Ambient Air Parameter		
Sr. No.	Test parameter	MDL
1	Particulate Matter (PM ₁₀)	10
2	Particulate Matter (PM 2.5)	10
3	Lead as Pb (µg/m ³)	0.5
4	Benzo (a) Pyrene (BaP)- particulate phase only(ng/m ³)	0.5
5	Arsenic as As (ng/m ³)	2
6	Nickel as Ni (ng/m ³)	10
7	Carbon Monoxide as CO (mg/m ³)	1
8	Benzene as C ₆ H ₆ (µg/m ³)	2
9	Ammonia (NH ₃) (µg/m ³)	10
10	Sulphur Dioxide (SO ₂) (µg/m ³)	5
11	Nitrogen Dioxide (NO ₂) (µg/m ³)	5
12	Ozone as O ₃ (µg/m ³)	5
13	Hydrocarbon (µg/m ³)	150



H. T. Shah
Lab Manager




Dr. Arun Bajpai
Lab Manager (Q)

Annexure – 2

Mangrove Afforestation

S. NO.	Location	FY	Area (Hectare)	Clearance Reference	Plantation/Gap Filling	Species
A.1	Mundra Port Area (Mundra, Kutch)		24.00	Environment Clearance - Mundra (J-16011/13/95-IA.III dated 25 August 1995)	Plantation	Avicennia marina
Total Plantation			24.00			
B.1	Mundra Port Area (Mundra, Kutch)		25.00	Environment Clearance - Mundra (J-16011/30/2003-IA.III dated 21 July 2004)	Plantation	Avicennia marina
Total Plantation			25.00			
C.1	Luni/Hamiramora (Mundra, Kutch)	2007-08	40.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina Rhizophora mucronata Ceriops tagal
C.2		2009-10	10.00		Gap Filling Work	
C.3		2010-11	10.00		Gap Filling Work	
C.4		2011-12	95.40		Plantation	
C.5		2012-13	25.40		Plantation	
C.6		2013-14-15	70.00		Gap Filling Work	
Total Plantation (C.1+C.4+C.5)			160.80			
D.1	Kukadsar (Mundra, Kutch)	2012-13	66.50	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina
D.2		2013-14	10.00		Gap Filling Work	Avicennia marina
Total Plantation (D.1)			66.50			
E.1	Forest Area (Mundra)	2011-12	50.00	Forest Clearance - Mundra (F.No. 8-2/1999-FC (pt) dated 27 February 2009)	Plantation	Avicennia marina
E.2		2012-13	248.00		Plantation	Avicennia marina
Total Plantation (E.1+E.2)			298.00			

S. NO.	Location	FY	Area (Hectare)	Clearance Reference	Plantation/Gap Filling	Species
F.1	Jangi village (Bhachau, Kutch)	2012-13	50.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina
F.2		2013-14	20.00		Gap Filling Work	Avicennia marina
Total Plantation (F.1)			50.00			
G.1	Jakhau Village (Abdasa, Kutch)	2007-08	40.10	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina Rhizophora mucronata Ceriops tagal
G.2		2008-09	10.00		Gap Filling Work	
G.3		2009-10	10.00		Gap Filling Work	
G.4		2011-12	50.00	Environment Clearance - Dahej (11-37/2007-IA-III dtd 11 November, 2008)	Plantation	
G.5		2013-14	20.00		Gap Filling Work	
G.6		2012-13	30.00		Gap Filling Work	
G.7		2012-13	20.50	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	
G.8		2012-13	200.00	Environment Clearance - Mundra (10-47/2008-IA.III dtd. 12th Jan,2009)	Plantation	
G.9		2013-14-15	50.00		Gap Filling Work	
Total Plantation (G.1 + G.4 + G.7 + G.8)			310.60			
H.1	Sat Saida Bet (Kutch)	2014-15	250.00	Commitment with KPT for 250 Ha. - Tuna (By undertaking dated 3 June, 2013)	Plantation	Avicennia marina
Total Plantation			250.00			

S. NO.	Location	FY	Area (Hectare)	Clearance Reference	Plantation/Gap Filling	Species
I.1	Village Dandi (Navsari)	2006-07	200.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina Rhizophora mucronata Ceriops tagal
I.2		2007-08	100.00		Plantation	
I.3		2007-08	100.00	Environment Clearance - Dahej (11-37/2007-IA-III dtd 11 November, 2008)	Plantation	
I.4		2008-09	200.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	
I.5		2010-11	200.00		Plantation	
Total Plantation (I.1 + I.2 + I.3 + I.4 + I.5)			800.00			
J.1	Village Talaza (Bhavnagar)	2011-12	50.00	Environment Clearance - Dahej (11-37/2007-IA-III dtd 11 November, 2008)	Plantation	Avicennia marina
J.2	Village Narmada (Bhavnagar)	2014-2015	250.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina
Total Plantation (J.1 + J.2)			300.00			
K.1	Village Malpur (Bharuch)	2012-13-14	200.00	CRZ Recommendation - Dahej ENV-10-2006-71-P dtd 29th May, 2007	Plantation	Avicennia marina
K.2	Village Kantiyajal (Bharuch)	2014-15	50.00	CRZ Recommendation - Hazira ENV-10-2012-30-E dtd 11th May,2012	Plantation	Avicennia marina
K.3	Village Devla Bharuch	2014-15	50.00		Plantation	Avicennia marina
K.4	Village Devla Bharuch	2015-16	100.00		In Progress	Avicennia marina
Total Plantation (K.1 + K.2 + K.3 + K.4)			400.00			
L.1	Village Tada Talav (Khambat, Anand)	2015-16	100.00	Environment and CRZ clearance - Mundra SEZ (10-138/2008/IA.III dated 15 July 2014)	In Progress	Avicennia marina
L.2	Village Tada Talav (Khambat, Anand)	2015-16	100.00		In Progress	Avicennia marina
Total Plantation (L.1 + L.2)			200.00			
G. Total (Plantaion done + In Progress)			2884.90			

Annexure – 3



Glimpse of Skill Development Initiatives by Adani Foundation

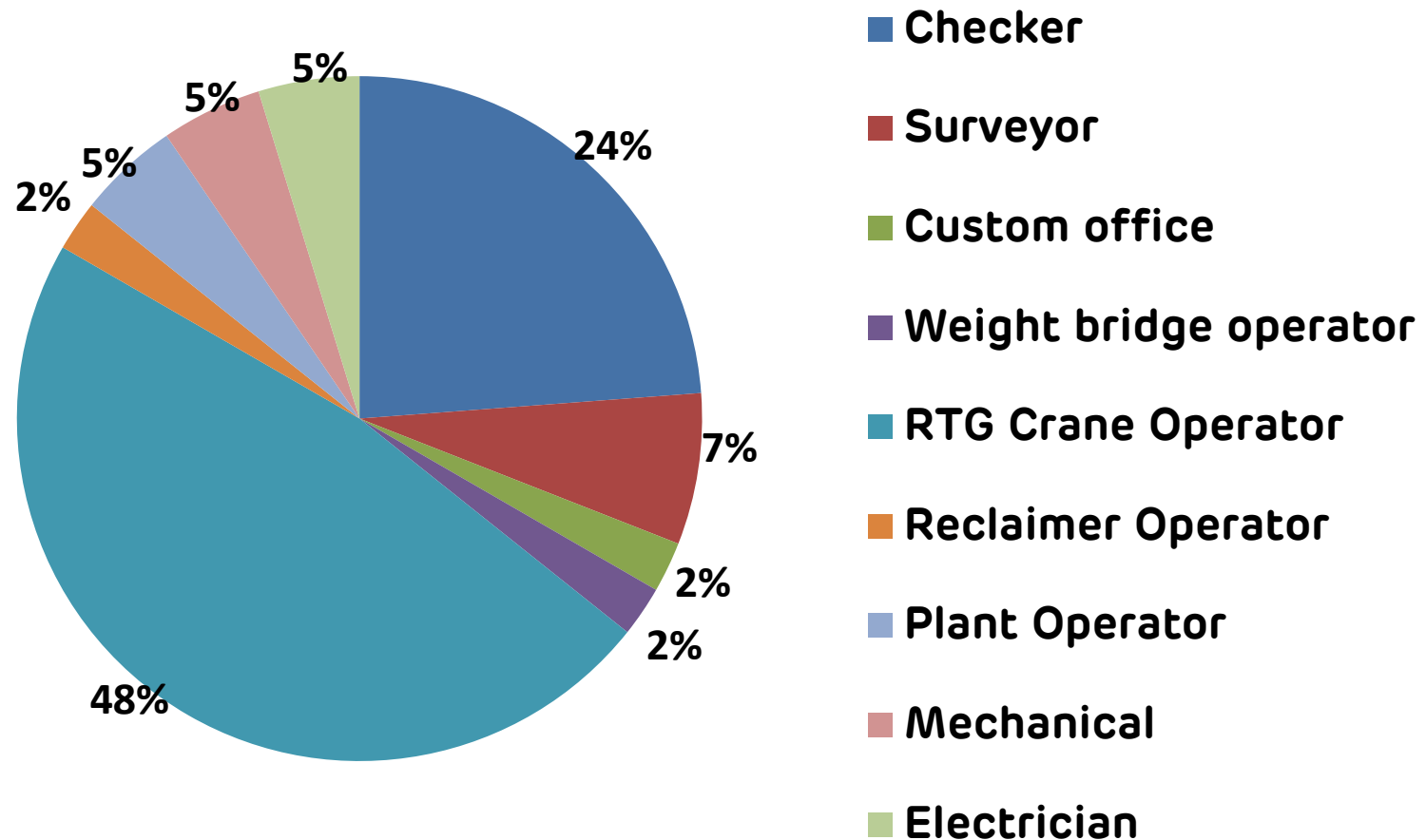
Adani Skill Development Center: Mundra

The objective of Adani Skill Development Centre is to impart different kinds of trainings to the students of 10th, 12th or ITI from surrounding areas. Thus various employment oriented programmes are organized to optimize the skills, art and knowledge through proper guidance and direction.

Course wise Status: Mundra

Sr.No.	Course Name	Location	M	F	Total
1	IT -Basic Computer	ASDC	44	25	69
2	Tally ERP 9	ASDC	11	0	11
3	Beauty parlor	Gundala	0	12	12
4	Basic Embroidery Work	Desalpur	0	25	25
5	Tailoring	Desalpur	0	15	15
6	IT - Basic Computer (Fisher men)	Navinal	12	10	22
7	Beautyparlour	Mundra	0	27	27
8	Checker	APSEZ	8	0	8
9	Checker Cum RTG Crane Operator	APSEZ	23	0	23
10	IT - Basic Computer	Siracha	57	46	103
11	Tailoring	Shekhdiya	0	14	14
12	Febric Work	Mundra	0	5	5
13	Glass Printing	Mundra	0	5	5
14	Mahendi	Mundra	0	10	10
15	IT - Basic Computer	Navinal	10	22	32
16	Mobile Repairing	ASDC	14	0	14
17	Mechanical & Electrical training	CT, APSEZ	11	0	11
18	IT - Basic Computer	Motabhadiya	13	6	19
19	Tailoring	Vadala	0	60	60
	Total		203	282	485

Job Placement after Technical Training



42 people employed after technical training with average salary Rs. 9000/- Monthly.

Adani Skill Development Center : Non Technical Training



Adani Skill Development Center : Technical Training

